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MODERN VIEWS ON SOME OBSTETRICAL AND GYNÆCOLOGICAL PROBLEMS.[1]

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BEFORE commencing the subject matter of the address I should like to express the diffidence I feel in reading this paper to you who have had much greater experience in these two branches than I. My excuse is the fact that through having been abroad recently I may have seen procedures and heard opinions which have not yet come to your notice.

I wish to bring to your notice, first, the conduct of normal labour as practised at the Rotunda Hospital and after that I have chosen for presentation to you three obstetrical conditions which seem to me of practical importance and liable to be encountered in everyday practice. They are: (1) Occipito-posterior positions, (2) uterine inertia and (3) contraction ring.

POINTS IN THE CONDUCT OF NORMAL LABOUR AS TAUGHT AT ROTUNDA.

The successful results obtained at the Rotunda are measured by the number of patients who are morbid in the puerperium. To prevent morbidity the rule of first importance is scrupulous cleanliness. The Rotunda standard of morbidity is given as follows: If the temperature rises above 37·2° C. (99° F.) and the pulse rate above ninety per minute on three consecutive occasions, counting from the beginning of the second day of the puerperium to the day of discharge, the patient is morbid. The morbidity rate in the year 1928 over 1,979 patients delivered in the hospital was 6·2%. The number of maternal deaths in the series was eleven. Combining the intern and extern departments, the mortality rate for the year was 0·32% or 3·2‰.

Some of the procedures to obtain these results will now be presented.

Sterile gowns are advocated when performing an actual obstetric operation. If the confinement room can be turned into an operating theatre, the wearing of theatre equipment is advised, but where such is not possible, the operator must keep his gloves clean, must touch nothing extraneous and it is then considered that the delivery will be conducted in safety.

Sterile coverings for the patient are not used. The confinement is conducted on waterproof sheeting and all materials, including the patient's night-gown, are moved up out of the way before the actual delivery takes place, to lessen the likelihood of the accoucheur's sterile gloved hands coming into contact with any of them. The waterproof sheeting on which the patient lies, is treated as follows. It is scrubbed in soap and water, then soaked for half an hour in a one in 1,000 solution of perchloride of mercury and then hung up to dry. When dry, it is ready for use.

Vaginal Examination.

The course of labour is followed in most instances by observation of its character, by palpation and by external vaginal examination. If further investigation is necessary, a rectal examination is made and this generally gives the required information. Only when absolutely necessary is a vaginal examination made and it is considered necessary in the following circumstances: With a contracted pelvis when the membranes rupture, to diagnose whether the cord has come down or not, in disproportion when the patient is undergoing a trial of labour, in order to determine whether the head will pass through the pelvis or not and in the presence of hæmorrhage to ascertain whether *placenta prævia* is present.

External vaginal examination is regarded as a most useful procedure and it is made by pressing the fingers against the tissues between the anus and coccyx. It is of value in following the descent of the presenting part and is absolutely without danger.

Delivery of the Child's Head.

A short description of the Rotunda method of delivering the head is given. The patient is placed in the left lateral position and the left hand is placed between the thighs in front. It is recognized that a wide separation of the thighs unduly stretches the perineum and increases the risk of a tear. By means of the fingers of the left hand on the fœtal head flexion is maintained until the occiput has passed the symphysis. This state is recognized by the ability to feel the anterior part of the anterior fontanelle outside the vulva. As soon as it is felt, the heel of the right hand on a pledget of cotton wool soaked in antiseptic is applied between the anus and the coccyx and presses the head forward in the absence of a pain. This causes extension and the head is thus quietly delivered between pains. It is stated that 45% of *primiparæ* suffer torn perineums, but attention is drawn to the fact that the patients are attended by students and probationers. In 1928 the rate for all cases was 23·3%.

Episiotomy.

Episiotomy is not practised as a routine, but is regarded as a useful procedure if a tear of the anterior vaginal wall is obvious, if a tear into the rectum is inevitable, if it appears that the laceration will be ragged and, lastly, if the condition is one of rigid perineum. Both lateral and central episiotomies are used. The former is used when the tear threatens to extend into the rectum and in the other cases the latter is practised.

The Third Stage.

It is considered that control of the fundus in the third stage is unnecessary in most cases and it is not practised at the Rotunda as a routine procedure, but a careful watch is kept on the mother's pulse.

[1] Read at a meeting of the Ipswich Clinical Society on March 30, 1930.

Perineal Tears.

Perineal tears are sutured before the placenta has left the uterus. The routine suture material is silkworm gut and catgut is used for tears of the vaginal wall and *sphincter ani*. The sutures may be tied at the time of their insertion or one knot only may be tied at this time, the second one after the placenta has been delivered.

Occipito-Posterior Presentations.

Frequency.

The frequency of occipito-posterior presentations is given at the Rotunda as one in 104. It is stated that its importance as an abnormal presentation is unduly stressed and that complicated labour in an occipito-posterior presentation is due not to the position of the fœtus, but to associated factors such as disproportion, inertia or too early interference.

Causes.

The causes of occipito-posterior presentation are laid down as follows:

1. Feeble uterine pains. 2. Damaged pelvic floor and *levator ani* muscles which retard internal rotation. These two factors encourage: 3. Bad flexion of the head and this produces a state of affairs in which the sinciput is lowest and rotates to the front. 4. A very small head may remain as a persistent occipito-posterior, but has no clinical significance. The converse is true relative to a large pelvis. In addition, a partially extended instead of a flexed position of the fœtal spine favours imperfect flexion of the head.

Course of Labour.

The occiput rotates to the front in practically all occipito-posterior presentations except in a *multipara* with a relaxed pelvic floor.

The mechanism of the second stage may be normal with rotation of the occiput to the front and no recognition of the presentation as a posterior. This represents what occurs in 90% of all occipito-posterior presentations.

On the other hand, early rupture of the membranes, slow dilatation of the *os* and caput formation may occur. This caput may be visible at the vulva, while the forehead is not yet through the brim. If delivery is accomplished at this stage, the occipito-frontal diameter must be delivered and so a very extensive perineal laceration will occur. If, instead of being delivered, the head is allowed to descend further, the caput moves forward on the fœtal head with the pressure of the pelvic floor and delivery can then be accomplished naturally or artificially with the occiput posterior giving rise to trauma only slightly in excess of that caused by occipito-anterior positions.

Treatment.

It is taught that the cause of the presentation must be diagnosed, for example, whether it is inertia or a damaged pelvic floor, and then treated. It is held that the necessity for performing manual rotation of the head seldom arises. When interference is indicated, one of the following procedures is advocated: (i) Those fœtuses which have adapted themselves to the birth canal are delivered in the occipito-posterior position. (ii) Those which have not, are treated by the application of axis-traction forceps to the head in the posterior position. Traction is made for a short time and the blades of the forceps are then loosened. They are tightened again and further traction is made. This procedure is repeated and the head gradually slews round with each pull on the forceps, so that eventually the head is delivered with the occiput anterior. The rotation of the head is brought about by the resistance offered by the pelvic floor to the traction of the forceps.

Comment.

The first point to attract attention is the frequency of the condition at the Rotunda. It is given as one in every one hundred and four deliveries and this represents the number of fœtuses actually delivered with the occiput posterior. No figures are given for fœtuses which are occipito-posterior at some stage of labour, but which rotate naturally to the front without interference. For the purpose of comparison I can give you two groups of figures for Queensland. The Obstetric Section of the Queensland Branch of the British Medical Association has published its results and the number of fœtuses delivered with the occiput posterior is one in every thirty-seven deliveries. At the Lady Bowen Hospital, Brisbane, for the same year the number was one in twenty-five.

These figures show that occipito-posterior positions do not present so important a problem at the Rotunda as they do in Queensland. It is interesting to speculate as to the reason for this. It appears that if the problem of contracted pelvis and disproportion in a community is a large one (and it is at the Rotunda), the occipito-posterior problem is one of comparatively small moment and conversely, if the disproportion problem is small, then the occipito-posterior one is great. This is confirmed by the well known fact that a large pelvis and a small head are regarded as causes of occipito-posterior positions. The Rotunda views did not appear to my mind to cope satisfactorily with the problem as we see it; and I give you, for what it is worth, the procedure which I adopt.

1. I carry out antenatal correction of the malposition when it is diagnosed before the onset of labour. This cannot always be accomplished, but is worth attempting and the Buist method of correction with pad and binder is often successful.

2. When the condition has not been diagnosed until labour has been in progress some time, it is advisable to rectify the position as soon as it is diagnosed. This can be done under anæsthesia, working with one hand in the vagina and one on the abdomen. If the cervix is not fully dilated, two or three fingers in contact with the fœtal head through the cervical canal will be able to bring about the desired rotation if the abdominal hand rotates the back anteriorly at the same time. Labour is then allowed to progress normally.

3. If the cervix is fully dilated and indications for prompt delivery are present, then forceps may be applied after the head has been rotated as just described. It may be necessary to push the head out of the pelvis to accomplish the rotation.

4. Axis-traction forceps are used as a routine, but this is one of the conditions in which Kielland forceps might be of use. They are applied to the fœtal head as it lies in the pelvis with the occiput posterior. The head is then rotated by means of the forceps until the occiput is anterior when the child is delivered.

5. A few cases are seen in which the head is at the vulva with the occiput posterior and in which an indication for delivery is present. It may not be possible to rotate these occipito-posterior presentations into anterior ones and then the procedure is to deliver the head by means of forceps with the occiput posterior, after an episiotomy has been done.

When I first commenced general and hospital practice, persistent occipito-posterior positions occurred frequently and were a source of considerable mental anxiety, but when I began to act on the scheme laid down above, the results were good and there was much less mental strain. As you all know, the management of abnormal presentations in private practice is somewhat different from that in hospital practice and methods which tend to lessen the duration of labour, provided they are safe for the mother and child, are welcome to both patient and medical attendant.

Uterine Inertia.

The Rotunda opinions on the subject of uterine inertia are sufficiently original to be worth presenting in detail. The general accepted view of this condition is that primary inertia is present from the beginning of labour and is due to some inherent weakness of the uterus, while secondary inertia occurs after labour has been in progress some time and is generally due to exhaustion of the uterine muscle in a prolonged attempt to overcome some obstruction.

The Rotunda classification of uterine inertia is as follows: (i) Primary inertia of which there are two varieties, early and late, and the term implies an inherent weakness of the uterine musculature. (ii) Secondary inertia of which there are also two varieties, early and late, and the term implies an inertia due to some condition outside the uterus. If either form of inertia occurs within the first twenty-four hours, it is classified as early, if it occurs after that time, the inertia is a late one.

Primary Uterine Inertia.

The causes of primary uterine inertia are given as abnormal nerve impulses to the uterus, weakness of the muscle itself or an abnormal "hormonic" state.

Symptoms.

Labour begins in a normal manner, but sooner or later inertia sets in, that is, the pains diminish in frequency and strength and may even pass away altogether. This may occur within the first twenty-four hours or later and so the inertia will be early or late. The condition may persist for hours or days. Generally the pains are feeble, but cause the patient severe discomfort and she demands relief. On examination the uterine contractions are seen to be feeble, the retraction level is low down, the temperature and pulse are normal and the fœtus shows no sign of distress.

Prognosis.

As long as the membranes are intact, the prognosis is good.

Treatment.

Before treatment is determined it must be definitely known that the condition is a true primary inertia and not a secondary one due to such conditions as full bladder, contracted pelvis *et cetera*, because the treatment of the two conditions is widely different.

If the condition is true primary inertia, then the treatment is as follows: (i) Rest at night and (ii) uterine stimulation during the day. For obtaining rest at night several drugs may be used, all of which are suitable. Some of them are: Morphine, "Omnopon," chloral hydrate, veronal, "Veramon" and the "three fifteens mixture" (potassium bromide and chloral hydrate, of each one gramme or fifteen grains, and tincture of opium, one mil or fifteen minims). The essential thing is to see that the patient sleeps well at night. For the purpose of uterine stimulation during the day the following are made use of: Quinine and "Pituitrin" in repeated doses of 0·25 cubic centimetre every half hour until one cubic centimetre has been given. "Thymophysin" is used occasionally, but care in its use is needed. Accessory procedures to these are the emptying of the bladder, hot enemata and hot vaginal douches lasting fifteen minutes. If all the indications for forceps application are fulfilled and assistance must be given, the presence of inertia is not regarded as a contraindication to delivery.

Secondary Uterine Inertia.

In the majority of the cases included under the heading of secondary uterine inertia disproportion is present. When the inertia is early, that is, within the first twenty-four hours, no signs of dystocia are present. When the inertia is late, the signs of an obstructed labour are present and both the patient and the child are in danger. Late secondary inertia is regarded as a protective mechanism which occurs in place of rupture of the lower uterine segment. The commonest causes of the condition are full bladder and rectum, contracted pelvis and tumours.

Symptoms.

A typical case is that in which after labour has been in progress for some time, perhaps twenty-four hours or longer, the pains cease and inertia has supervened. Examinatiqon at this stage will reveal that the mother's temperature and pulse rate have risen and that the fœtus shows signs of distress.

The membranes have usually been ruptured for some time and the retraction level is high, nearly up to the umbilicus, while the *os* is not fully dilated.

Prognosis.

Prognosis depends on the length of time the membranes have been ruptured.

Treatment.

The cause must be ascertained and the treatment will be directed to the cause. When the cause is disproportion and the *os* is not fully dilated, if interference is necessary, then lower segment Cæsarean section is advocated. If the *os* is fully dilated and interference is necessary, delivery may be successful by forceps traction.

Comment.

The ideas just presented to you seem to me original and helpful both as regards the classification and the treatment of the condition. They are also of practical value and so should be worth your attention, if it has not already been drawn to them.

CONTRACTION RING.

Contraction ring is regarded as being one of three conditions which are grouped together under the term incoordinate uterine action. The other two conditions are false labour and spasm of the uterus. False labour is familiar to you all, while spasm of the uterus is generally known as tonic contraction of the uterus. These two conditions will not be discussed here.

With regard to contraction ring, it is of importance that the term should not be confused with retraction ring which occurs in tonic contraction of the uterus.

Explanatory.

In a normal labour the lower uterine segment, when formed, stretches from the external *os* below to the retraction level above. At the end of the first stage the fœtal head passes through the lower uterine segment which is also drawn up above, and then it comes to lie on the pelvic floor. At this stage a large part of the contents of the uterus which are the fœtus and some *liquor amnii*, has left the cavity of the uterus, so that for a time labour does not progress further until the uterus by contraction and retraction has diminished its size sufficiently to fit its diminished contents. When this has occurred, the uterine contractions are again able to act on the fœtus and force it onwards. At the same time retraction proceeds and this retraction "takes up the vaginal fornices just as before it took up the cervix. A retraction level again forms, its upper limit being a point just above the paralytic external *os*. The vagina is thus rendered taut and the vaginal fornix has as its surface marking a point one or two fingers' breadth above the pubes and the uterus has become an entirely abdominal organ." This is regarded as the course of events in a normal labour, but in a percentage of cases the so-called quiescent phase is prolonged and the retraction level, instead of rising during the second stage, remains at its original level and gradually closes as a ring round the neck and shoulders of the fœtus. The final condition is one in which the uterus practically adapts itself to the shape of the fœtus and when pains occur, the contraction ring tightens and there is no descent of the fœtus.

Its Nature.

The nature of a contraction ring is primarily an incoordinate uterine action setting in after the passage of the presenting part through the internal *os* and after which the cervix actively retains the *fœtus in utero*. Its association with contracted pelvis is altogether accidental, but difficulty in delivery may suggest a diagnosis of primary disproportion. The condition is initiated by any abnormality in the presentation such as would render the surface over which the cervix is to be taken up, uneven or irregular in shape, such as a face and a brow presentation or an occipito-posterior position. A contraction ring, once formed, is increased in tightness by oxytocics or forcible efforts at delivery. As an obstetric entity it is far commoner than any statistics would give one to believe, for the ring tends to loosen under full surgical anæsthesia, but when once present, if left entirely alone, it marks the onset of involution in the uterus, its site being the neighbourhood of the internal *os*. When the condition occurs after the birth of the child, it is known as hour-glass contraction.

Symptoms and Signs.

It is found most often in *primiparæ*. At the end of the first stage of labour, the signs of commencement of the second stage are expected, but these do not occur and labour appears to be at a standstill. The uterus is flaccid and not tense to palpation. The signs of fœtal and maternal distress are absent and there is no indication for prompt delivery. This gives the clinical picture in the early stages. Later, indications for delivery supervene, especially when "Pituitrin" has been administered, when attempts at operative delivery have been made or when a malpresentation is present. Under these conditions the contraction ring tightens, maternal distress becomes manifest and the uterus becomes tense with a likelihood of rupture occurring in the lower segment. Signs of fœtal distress also appear.

Diagnosis.

Points to be remembered in diagnosis are that the uterus is relaxed between the pains and not tender and a thickening is present at the junction of the upper and lower segments. Generally the diagnosis is not made until the fingers are passed above the presenting part by way of the vagina and then the ring can be felt.

Treatment.

If "Pituitrin" has been given, the best treatment is morphine in full doses combined with atropine, followed in one hour's time by delivery with forceps. In the presence of malpresentation,

Cæsarean section is advised on account of the difficulty and danger of correcting the malpresentation in the presence of the contraction ring. Delivery is sometimes possible with steady forceps traction under deep anæsthesia.

Comment.

The statement that the condition occurs fairly frequently is borne out by experience and the condition is a most unpleasant one to meet. The diagnosis is not easy and can be made with certainty only by passing the fingers through the cervix. This generally means that the diagnosis is not made until labour is well advanced.

It has been my experience that in a percentage of these cases, the external *os* does not dilate in the presence of the contraction ring and that after labour has been in progress some time, generally some days, the external *os* will admit only two or three fingers. Sooner or later interference is indicated and must be either abdominal or vaginal. Abdominal interference means Cæsarean section which is not pleasant to contemplate in a patient who has been in labour for such a time, even if the lower segment route were preferred. Vaginal delivery means manual dilatation of the cervix and forceps delivery. Manual dilatation of such a cervix as this is a procedure not to be adopted lightly. It may be possible to perform it in a *multipara* without laceration, but is scarcely possible in a *primipara* without extensive laceration and its attendant risks.

It has been stated that the formation of a contraction ring signifies the beginning of involution of the uterus, so that unless the patient receives aid, she is not capable of delivering herself. The condition is commoner in the presence of malpresentation and rectification of this with the administration of morphine is usually successful in permitting delivery to be made in safety. When the condition occurs in the presence of a normal presentation, then the alternatives are unpleasant. The opinions I have encountered at the present time advise one of the two procedures above mentioned, namely Cæsarean section or manual dilatation of the cervix and forceps delivery. The present-day treatment of this condition is not very satisfactory and it is hoped that a safer treatment will be recommended in the near future.

THE INTERNAL SECRETION OF THE OVARY.

I now wish to bring before your notice some gynæcological matters of interest and the first of these is the internal secretion of the ovary.

Composition.

It is generally agreed that the internal secretion of the ovary is an oil containing carbon, hydrogen and oxygen that can be freed from cholesterol.

Standardization.

Until recently the unit was regarded as the smallest dose that would produce an œstrous cycle in a rat deprived of its ovary, the presence of œstrus being determined by making vaginal smears which are examined microscopically for the characteristic findings. Later workers, however, have shown that the determination of the unit is not so simple as this. They have shown that the minimum effective dose is not the same for all rats and have come to the conclusion that a more exact definition of the rat unit would be as follows: The quantity of material which produces the full œstrous cycle in 50% of the series of injected animals.

The Hormone in Solution.

Up to the present time the preparations for therapeutic administration have been solutions of the extract in oil. But as it has disadvantages, such as the necessity for subcutaneous administration with the formation of painful nodules under the skin and its slow rate of absorption, attempts are being made to prepare the substance in a water-soluble form. They have not yet been completely successful, but one worker at least has obtained active material in a water-soluble form and it should not be very long before such a preparation is available.

Distribution.

It is generally accepted that the hormone is mainly present in the *liquor folliculi* of the ovary and in the opinion of some in this situation only. With regard to the *corpus luteum*, it is held that the hormone is not present in that structure in the case of animals, but that it is in the case of human beings. The placenta is stated to be a fruitful source, while it is also found in the urine of pregnant women. Very few workers agree that the interstitial tissue of the ovary produces a secretion.

Corpus Luteum.

A statement of Fraenkel's opinion in regard to the *corpus luteum* is of interest. He holds that ovulation occurs prior to premenstrual changes and that as the ovum passed down the Fallopian tube, the *corpus luteum* causes the premenstrual changes in the uterus. If conception does not occur, then the premenstrual edifice is destroyed on the retrogression of the *corpus luteum* and menstruation results. This view seems to be fairly generally agreed upon.

The Anterior Lobe of the Pituitary.

The pituitary gland must be mentioned because it is closely related to the ovary in action. It has been shown by experiments on immature female mice that the hormone of the anterior lobe and only this sets into action the latent ovarian function and thereby brings the immature mouse to sexual maturity. It has been proved also that large amounts of this hormone are present in the urine of pregnant women and this will be referred to later in connexion with the test for pregnancy.

The question arises at this stage as to whether there is only one hormone from the ovary or more than one and also whether the so-called hormone is not really anterior pituitary secretion.

Some authorities hold that there are three distinct hormones: (i) From the follicles, (ii) from the *corpora lutea* and (iii) from the interstitial tissue. Others hold that there are only two, one from the follicles and one from the *corpora lutea*, while still others state the possibility of the ovary and especially the follicles being merely a storehouse for secretion from the anterior lobe of the pituitary. Novak is of the opinion that there are two distinct ovarian hormones, one from the follicles and one from the *corpora lutea* and that the latter can exert its effect only when the field has been prepared by the follicle hormone.

From this it can be seen that there is still no unanimity of opinion on the question, but it is interesting to try to find which of the various preparations are of therapeutic value. Their names are legion and a brief summary is given:

The commercial preparations of the follicle hormone are called "Folliculin," "Oestrin," "Oestrogen," "Feminin," "Menformon" *et cetera*, while there are two well known preparations of the *corpus luteum*, lipamin or "Agomensin" and luteo-lipoid or "Sistomensin." "Agomensin" is a substance extracted from the fresh *corpus luteum*, while "Sistomensin" is extracted from mature *corpus luteum*. All the substances are administered preferably by hypodermic injection because, although they are active by the mouth, the dose necessary to produce the same therapeutic effect is from twenty to sixty times that by injection.

The conditions for which the preparations have been prescribed are many. A list is given: (i) The deficiencies of menstruation (amenorrhœa, hypomenorrhœa (scanty menstruation), oligomenorrhœa (infrequent menstruation), delayed puberty and the menopause; (ii) sterility; (iii) abnormal uterine hæmorrhage; (iv) dysmenorrhœa and (v) the vasomotor symptoms of the menopause. Those conditions in which results of some value have been reported are amenorrhœa, dysmenorrhœa, menorrhagia and the menopause, but the results of all workers are not in complete agreement.

To summarize the position, it appears that in spite of a number of new preparations and a somewhat more scientific approach to the subject, the therapeutic application of ovarian products is not very helpful and that, although the use of some of them in actual practice is justifiable on scientific grounds, results will be found to be very disappointing.

Tests for Pregnancy.

The second gynæcological subject for presentation is that of tests for pregnancy. The only one considered to be of value is named the Zondeck-Ascheim test. The basis of the test rests upon the fact that during pregnancy the anterior lobe of the pituitary gland undergoes changes and produces its secretion in considerable excess with a resulting excretion in the urine. It has been shown that injection of anterior pituitary secretion into mice and rats causes definite enlargement of their ovaries. For the purpose of the test, subcutaneous injections of the urine of women suspected of being pregnant is made into immature female mice. If the woman is pregnant, the injection is followed by swelling, congestion and hæmorrhage of the ovaries together with the premature maturation of the follicles. All these changes are visible to the naked eye. In performing the test, the first specimen of urine passed by the patient in the morning is used. Those who have made use of the test claim positive results in over 90% of cases, so that, although the test is of considerable academic interest, it is not suitable for practical application.

Sterility in Women.

The third gynæcological condition I wish to mention is that of sterility in women. While in London I was fortunate to be able to work as clinical assistant to Forsdike at the Soho Hospital for Women. He has had considerable experience in this subject and I propose to give you a synopsis of his routine procedure in investigating cases of this type. For clinical purposes he divides the patients into two big groups: (i) Those who present gross pelvic lesions, and (ii) those in whom no lesions are to be detected on examination. The first group will not be discussed, but I give you his methods in the second type of patient.

He stresses the importance of commencing the investigation by examining the male for the presence of a sufficient number of actively motile spermatozoa and says that 25% of childless marriages are due to a pathological condition of the husband.

In the woman, the search for the cause should begin with a search for spermatozoa in (*a*) the vagina and (*b*) the cervix. When found, they prove coitus. He has never been able to find any in the vagina four hours after coitus, but has in some cases two hours after. Spermatozoa are much more frequently found in the cervix than in the vagina. When found, they indicate that the man is normal and that the vagina and cervix are healthy. If there are none in the cervix and only dead ones in the vagina, the acidity of the vaginal and cervical secretions should be suspected.

If conditions are normal thus far, he advises investigation of the uterus, tubes and ovaries and the methods are:

1. Dilatation and curettage of the uterus which is probably the commonest procedure, but which he regards as unjustifiable unless the tubes are patent.

2. Inflation of the uterus and tubes by gas and air which is carried out by some mechanical device constructed on the principles embodied in Rubin's apparatus. At present Forsdike rarely uses this procedure because, although it is of therapeutic value and gives information as to the patency of the tubes, yet if pregnancy does not follow in patients

whose tubes are patent, then it is necessary to perform the next test.

3. Investigation of the uterus and tubes by means of opaque bodies. In this regard he is satisfied that in addition to giving exact information as to the site of obstruction, if such is present, it is also a procedure of considerable therapeutic value and should be done in every instance, whether patent or obstructed tubes are present, on this account. This would mean practically a reduplication of Rubin's test and it is for these reasons that he relies mainly on the injection of "Lipiodol." His apparatus is uncomplicated and the method is simple. Anæsthesia, as a rule, is considered unnecessary. A ten cubic centimetre "Record" syringe is filled with "Lipiodol" and the injection is made into the uterus with the patient under the X ray screen. The fluid is injected until the patient complains of pain. This signifies that the site of obstruction has been reached and its position can be seen on the screen. An X ray photograph is taken at this stage and another one or two days later. The importance of the second picture is stressed because the obstruction may be due to spasm of the tubes at the time of injection. This spasm may subsequently relax and allow the opaque substance to pass through into the peritoneal cavity where it is visible in the second picture.

If the tubes are patent, he advises waiting for nine months after "Lipiodol" injection, as he has found that a certain percentage of patients become pregnant during this period. If the tubes are closed, he advises operation if the obstruction is in the ampullary portion of the tube.

When the tubes are patent and have been subjected to "Lipiodol" injection, if pregnancy does not follow in nine months, he advises operation in the hope that there may be some condition of the ovary present which will respond to surgical treatment. Two of these conditions are cysts of one or both ovaries and veils of peritoneum which shut off the ovary from the peritoneal cavity.

All gynæcologists do not agree with Forsdike that plastic operations on the tubes are useless. Solomons, at the Rotunda, does plastic operations frequently, even when the obstruction is in the region of the isthmus. His justification is that although many of the tubes do not remain patent afterwards, yet there is a small percentage of patients who seem to respond and later become pregnant.

It seems that Forsdike's procedure is a very complete investigation based on many cases and years of experience and he is convinced that the only form of tubal obstruction in which operation is justifiable, is the ampullary one and he has given up operating when the obstruction is elsewhere, because he has not had results which justify it.

RADIUM IN GYNÆCOLOGY.

The last section of the paper is devoted to some aspects of the use of radium in gynæcology.

A paper in which an attempt is made to give some modern ideas of gynæcology, could hardly fail to contain some space devoted to the subject of radium, as this is the most recent method of treatment for a number of conditions and is receiving a considerable degree of attention.

First, a few remarks on the treatment of cancer of the cervix. At the present time the treatment of cancer of the cervix is not the same in all countries. The following is an abbreviated summary of the principal schools.

1. Wertheim's extended operation or some modification of it is used in operable tumours. There is a strong British school which favours this method of procedure, and, of course, Wertheim's original clinic in Vienna still supports it.

2. An extended vaginal hysterectomy, the so-called Schauta-Schuchardt operation, is favoured by the Schauta Clinic in Vienna.

3. Total hysterectomy in early cases where the disease is limited to the cervix. This method is advocated by some in London.

4. Radium is used in all tumours, operable or otherwise. This method is adopted in Stockholm and in some German clinics.

All those who prefer operative treatment for operable growths, make use of radium in their treatment of inoperable growths and some operators combine the use of radium with operation, notably at the Schauta Clinic.

The problem presented is this: Should all cases of cancer of the cervix be treated with radium or should the use of radium be confined to inoperable cancers only? A simple solution would seem to be a comparison of results. But this is not so simple nor so straightforward as it seems. There are many factors which enter into the problem in addition to the actual statistical results. For instance, to make statistics comparable there must be a standard classification of cancers, but this has not been possible until fairly recently. Then, too, the standard of cure must be the same in all centres. It is not sufficient to say that a patient is cured of cancer after one year or after two, but at least five years are necessary before results of value can be produced. Then, too, the number of patients treated by any particular individual or clinic has a bearing on the results claimed. The greater the number treated, the more valuable are the results. In some countries where results are published, the number of cases is few and they are divided up amongst several workers, each using a technique different from that of the others. On the other hand, there are some clinics at which large numbers of patients have been treated for a considerable time with a standard form of treatment and it is the radiological results from these clinics which are worth considering.

Another feature of the problem is the division of the growths into operable and inoperable types. The decision rests with the individual operator and a growth which is operable in one surgeon's hand, would be judged inoperable by another.

There are two further aspects which must be considered and they are the primary mortality of

the opposing methods and the effect on the patient, apart from the question of cure. In the surgical treatment the operative mortality in skilled hands is given as 15%, while with radium treatment in skilled hands it is practically nil. Then, too, after an extended operation, abdominal or vaginal, most of the surviving patients will have to regard themselves as more or less permanent invalids and this is when the malignant condition has been diagnosed comparatively early. After radium application, on the other hand, even in advanced growths, the physical condition remains almost unimpaired until just before death and during this time the patients are practically symptom-free. In early cases the prospect of cure is as great with radium as it is with surgery according to a comparison of statistics, reliable or otherwise. They demonstrate that the actual five-year survival rate of all patients seen is approximately the same whether the treatment be surgical or radiological. A point worth mentioning is that patients will present themselves earlier for treatment by radium than they will for treatment by a method which involves a serious and prolonged operation. It is held by supporters of radium treatment that surgery has reached the highest point to which it can attain, while radium treatment gives excellent prospects of effecting better results by improvement in methods, dosage *et cetera*.

Heyman, of the Radiumhemmet, Stockholm, commenced his radium treatment in inoperable growths. The palliative effect was remarkable and he was agreeably surprised to find that in some quite advanced cases he obtained five-year cures. After some years his results led him to approach the Swedish gynæcologists and ask them to refer patients with operable growths to him for radiological treatment. This was done and his results were such that in Stockholm radiology is the treatment preferred in all cases of cancer of the cervix.

It appeared to me who saw and heard authorities on both sides and who had access to much of the literature on the subject, that it will not be very long before radium application displaces the extended operations in the treatment of this condition. The exponents and supporters of the surgical treatment will not give way readily and one can appreciate the point of view of those who have spent years in perfecting themselves in the technique of an operation such as Wertheim's. But many of these gynæcologists have had no radiological training, while the younger generation is receiving such training and it is from the latter that surgery may expect its death blow.

Even in Vienna, the home of the extended operations, the opinion was expressed to me by a graduate of Wertheim's clinic that it was only a question of time before radium was used to the exclusion of surgery.

The problem in cancer of the body of the uterus is somewhat different. Fewer cases are seen, the operative procedure is not so fearsome, operative mortality is lower and radium treatment has often to be followed by operation to effect a cure. Most authorities are of the opinion that operative treatment is the method of choice unless there is some contraindication thereto, when radium should be used. Heyman, however, treats all patients, when first seen, by radium application and resorts to operation only if there is evidence of recurrence. His opinion is that the worse results with radium in this condition are due to mechanical difficulties in applying the radium evenly to the surface of the growth. Were this difficulty to be overcome, then he thinks that the results would exceed those of surgery.

It seems not proper to omit to mention the use of radium for a condition in which it gives excellent results and in which its value is admitted very generally. The condition is that of excessive uterine bleeding when no clinical lesion can be found. Many of these conditions have in the past been labelled chronic endometritis and chronic metritis and for the former curettage has been performed with occasional benefit, while for the latter hysterectomy has been the only means of relief. Radium gives the best and most certain results in those patients who have this complaint when they are at or near the menopause. In younger patients the dosage has not been thoroughly worked out and so the results are not so generally satisfactory. But very soon the patients will be subdivided into age groups, with the dosage necessary to effect a cure worked out fairly exactly for each group. The application of the radium is technically easy, the discomfort to the patient is slight and the cure of her complaint without removal of the uterus is gratifying to the patient and should be equally so to her medical adviser.

Conclusion.

In conclusion I should like to thank you for listening so patiently to what I have said and if I have said anything which will be of practical use to you, I consider that I have been able to accomplish something of what I set out to do.

AN EFFECT OF LIGHT ON BLAIR BELL'S COLLOIDAL LEAD.

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and

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In the second annual report[1] of the Baker Institute attention was drawn to the fact that we had found that light exerted a curious effect on the particles of colloidal lead solutions in so far as it stopped the Brownian movement as observed under the microscope. We desire to report our results on this subject in detail.

Method of Preparation of the Colloidal Lead.

Blair Bell's colloidal lead solution is prepared according to Lewis[2] by passing an electric current through lead electrodes in a saline solution of gelatin, sparking the while by making and breaking the circuit and subsequently adding certain salts.

Details of the Method as Used at the Baker Institute.

1. Dissolve 2·5 grammes of pure French gelatin in distilled water to make a 0·5% solution. The gelatin is added bit by bit to the heated water which is made up to 500 cubic centimetres. To this gelatin solution are then added five cubic centimetres of N/2 calcium chloride solution.

2. Three hundred cubic centimetres of this gelatin solution are now placed in a "Pyrex" glass beaker of 400 cubic centimetres capacity and 350 grammes of pure granulated assay lead are sprinkled into the liquid, forming a layer of lead on the bottom of the beaker. In this medium the sparking is carried out. The electrodes are fitted to the output terminals of a direct current generator, a suitable resistance being inserted into the circuit to control the current. The electrodes are about 22·5 centimetres (nine inches) long and consist of pure lead, forming fairly stiff, slender rods. As considerable heat is generated in the sparking, the beaker containing the gelatin and granulated lead stands during the operation in a larger beaker containing crushed ice. The sparking is done by inserting the electrodes into the beaker, one being held with the point in the lead layer at the bottom of the beaker, while the other electrode is continuously moved about in a scraping fashion across the granulated lead. The sparking is maintained continuously for fifteen minutes with a current of suitable ampèrage. The gelatin is used to protect the lead and the calcium chloride assists in dispersing it.

3. Blair Bell requires that the particles be not larger than 0·3 μ in diameter in the solution to be injected. He gets rid of those over this size by centrifuging at fairly high speed, when the larger particles are deposited on the bottom of the centrifuge tubes. The supernatant fluid is then transferred to a boiling flask (Figure I) where any scum is boiled off. To every hundred cubic centimetres of the preparation are added during boiling 1·1 grammes of sodium chloride and one cubic centimetre of a solution containing 2·7% calcium chloride and 2·7% potassium chloride. The salts are added to make the solution slightly hypertonic.

4. The lead colloid solution is then boiled again in the same flask and quickly filled into sterilized glass stoppered bottles. The bottles are filled to overflowing and the stoppers quickly and tightly inserted. The bottles are then inverted and the necks submerged in small beakers containing some of the hot colloidal lead solution or alternatively sterile saline solution, so that in the event of the stoppers not being air-tight, no air will be sucked in as the solution cools. Finally, when cooled, the necks of the bottles are dipped into melted paraffin wax and not opened till required for injection. This is usually made on the same day as the solution is prepared.

5. Standardization.—Made under standard conditions batches are fairly constant in their final concentration of lead. By the hydrogen sulphide colorimetric method each batch is standardized by comparison with a standard lead solution containing one milligramme of lead per cubic centimetre. The standard solution should be made up in the gelatin menstruum as it facilitates the colour comparison.

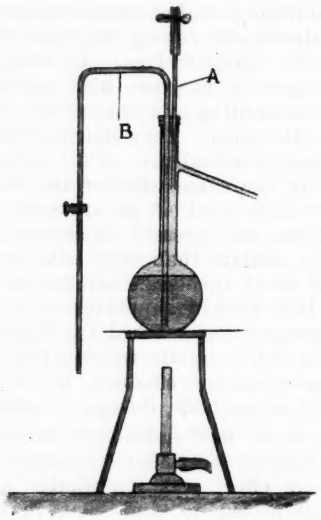

FIGURE I.

6. Finally, the solution is examined microscopically to see that no agglutination of particles has occurred and that none of the individual particles is larger than 0·3 μ. The resulting colloidal lead solution contains usually four to five milligrammes of lead to the cubic centimetre. It is greyish black and when viewed under the high power dark ground microscope, is seen to consist of myriads of minute particles in active Brownian movement. The lead particles in this condition are difficult to measure and Blair Bell has not given a technique for the purpose.

The Effect of Light on Colloidal Lead.

When a cover glass preparation of Blair Bell's colloidal lead is examined by dark ground illumination, using a powerful illuminant, the actively moving particles are observed to settle on the lower and upper surfaces of the chamber, usually about 90% of them being on the bottom of the chamber and about 10% of the particles being on the upper surface. No agglutination of the particles is observed, that is to say, they do not settle in heaps, but more or less uniformly over the whole of each surface. The phenomenon occurs only in that portion of the preparation illuminated by the cone of light. Outside this area the particles are apparently entirely unaffected. The source of illumination actually used and with which we first observed this

effect, was a five ampère direct current carbon arc lamp fitted with a condenser to render parallel the rays of light falling on the mirror. The substage condenser used was a Zeiss cardioid (1925) with oil between the condenser and the glass slide containing the colloidal lead particles. The preparation was viewed through a Zeiss ×60 apochromatic objective and a ×10 compensating ocular. The particles were brilliantly illuminated and the above effect was produced and almost completed after two to three minutes' exposure to the influence of the light. A few odd particles may not settle so readily, usually because they have moved into the field from without. The particles after they have settled appear to be much larger than when they are first observed. They appear to grow while they are yet moving, but those actually seen on the slide appear frequently to be much larger than any of those in motion. The growth does not occur by visible agglutination of the particles which is extremely rare, but probably depends upon a more or less uniform accretion round the whole particle. It is also possible that the larger particles spread out when they come in contact with the glass. The cell in which these effects have been observed has consisted of ordinary glass and not of quartz.

Light from Various Sources.

Sunlight was used and found to be as active as or even more active than the one thousand candle-power carbon arc in causing the settling of the lead particles. In the case of the sun's rays no condenser was used between the sunlight and the mirror of the microscope. The light from an Ediswan alternating current pointolite lamp of one hundred and fifty candle-power was also found to produce the effect, but took a substantially longer time. A fifty candle-power filament lamp which is not satisfactory for dark-ground illumination, gave very poor lighting and after twenty-four hours' exposure to this light only relatively few of the particles had been affected.

The Effect of Polarized Light.

Batch 104 of colloidal lead, made according to the usual method, was first shown to be composed of particles easily moved to the surfaces of the chamber by the arc light admitted through the cardioid dark-ground condenser. A number 1 Zeiss polarizer was then inserted under the cardioid condenser and another field of the preparation was exposed. The reaction was complete in about twelve minutes, so that polarized light produces the effect. This was repeatedly confirmed.

Directional Effect of Light on Lead Particles.

As has been stated, it was observed that a large majority of the particles went to the floor of the cell, while only a few settled on the upper surface. It was considered that gravity might be playing a part in this result, consequently the microscope was inverted and illuminated from above while the particles were observed from below. Under these conditions the particles were found chiefly to go upwards in the direction of the light. The relative distribution of the particles between the two surfaces was similar to what had been observed when the microscope was in the normal position, consequently we believe that gravity plays no part in this reaction. The particle before settling is in quite active movement and can be seen sometimes to make a sudden dash to the slide and it is noticeable that in settling it selects a clear place on the slide between other settled particles. Whether these results depend upon electrical charges we are not in a position to say. The walls of the cell used consisted of a glass slide and a thin glass cover slip cemented with paraffin wax round the edge of the cover slip and it occurred to us that the chemical composition of these two glasses might be different and that that difference might play a part in directing the particles to the slide rather than to the cover slip. We therefore made a cell having its floor and ceiling of the same cover slip glass and repeated the work. The original effect occurred, the large majority of the particles moving towards the light.

Stability of the Settled Particles.

If a cell made of two cover slips in which this reaction has occurred, be inverted so that the cover slip forming the upper surface of the cell becomes the floor of the cell and nearer, therefore, to the light, on reillumination no particles are seen to be detached from the surfaces of the chamber. It appears that once a particle has settled on a surface it cannot be dislodged again by the influence of light after the inversion of the chamber.

Macroscopical Attempt.

A horizontal glass tube containing the colloidal lead and having a flat end was exposed to parallel rays of light from the arc and from the sun, these being directed through the length of the tube which was fifteen millimetres (five-eighths of an inch) in diameter and fifteen centimetres (six inches) long. The colloidal lead solution used was well diluted. In this case no obvious drift of the particles could be made out, but whether this was due to the opacity of the solution in a thick layer or to the absence of a focal point in the light, we have not yet ascertained. In all these experiments the air must be carefully excluded, as the lead colloid is easily oxidized, after which it tends to precipitate.

The Position of the Focal Point.

We have endeavoured by focusing on the lower surface of the cell, the middle of the cell and the upper surface of the cell to see if we could alter the distribution of the lead particles as between the two surfaces, but we have not been able to find a position of the focal point in which we could guarantee to get a majority of the particles settling on the upper surface of the cell.

The Effect with Other Substances.

Colloidal silver was prepared with the use of the same technique as that used for the preparation of colloidal lead, except that in the case of silver no

addition of salts was made after the sparking. Tested under the influence of dark-ground illumination with arc light and sunlight, it was found to behave in the same way as lead and in a shorter time. The light effect is, therefore, not peculiar to colloidal lead.

Argyrol, a vegetable protein compound of silver, in 10% solution was also treated in the same way, but the effect after a prolonged exposure was only very slight. Argyrol in weak solution, examined spectroscopically, admits the passage of the yellow visible light which as we show later is ineffective, but blocks very largely the passage of visible light of short wave length.

Bacterial emulsions of *Staphylococcus albus* have not been found to be affected like colloidal lead or silver. The cocci are not driven to the surfaces of the chamber by the light that we have used.

Iodargol, a colloidal iodine preparation, has not been found to be affected by light in the manner described.

The Use of Filters.

This portion of the work was done chiefly with colloidal silver. The colloid was made by sparking with silver electrodes in a 0·5% watery solution of gelatin. No salt of any kind was added to the solution before or after sparking. The solution was two years old at the time of the experiments and was remarkably uniform and stable.

Heat Filters.

To absorb the heat from the carbon arc lamp rays, a filter containing water was placed between the arc lamp and the mirror of the microscope. This was found to cut out most of the heat rays from the light passing to the cardioid condenser. A weak copper sulphate solution was also used for the same purpose. With these filters the effect occurred as usual, but required a slightly longer exposure, probably due to the partial opacity of the filters to some of the light rays. From this experiment we concluded that heat rays were not necessary to produce the effect.

Light Filters.

In conjunction with filters of plain water to remove the heat rays, colour filters permitting the passage of rays of various specified wave lengths were next used. In Table I the data obtained while using Wratten M. filters with colloidal silver are presented. From this table it is seen that light of short wave length is very active in this reaction, while light of greater wave length is relatively inactive.

Ultra-Violet Light Filter.

Ultra-violet light is largely held back by glass, but some ultra-violet light of wave lengths above 3,300 Ångström units is transmitted. A Becker screen, therefore, such as is used by chemists in throwing ultra-violet light on the surface of chemical substances, was used, the source of light being the carbon arc. The light which passed through the Becker filter in this way rapidly produced the effect, though the amount of visible light the filter passed was altogether negligible.

TABLE I.

The Effect of Visible Light of Various Wave Lengths on Colloidal Silver Particles.

Designation of Filter Used.	Wave Lengths Transmitted.[1]	Time taken to produce Settling of an Arbitrary Standard Amount.
A. No. 25	5,900–7,000	Thirty minutes.
B. No. 58	4,900–6,000	Two minutes.
C. No. 49	4,000–4,900	One minute.
D. No. 35	4,000–4,600 and 6,500–7,000	Three-quarters of a minute.
E. No. 22	5,600–7,000	Twenty minutes.
F. No. 29	6,100–7,000	Partialafteroneandahalfhours.
G. No. 15	5,100–7,000	Five minutes.
H. No. 45	4,300–5,400	One and a half minutes.
No filter		Quarter to half a minute.

Filters used—Wratten M. series. For particulars, see booklet "Wratten Light Filters," Eastman Kodak Co., Rochester, N.Y., 1928 edition.

[1] In stating the limits of transmission of the filters regard has only been had to the portions of the filters transmitting not less than 2%.

The Effect of Menstruum.

Different constituents were omitted from Blair Bell's original menstruum and the colloidal lead produced in these various modifications was submitted to the action of the light when it was found that if the menstruum contained the gelatin and calcium chloride of the original sparking solution, but not the calcium, potassium and sodium chlorides added after boiling, still the lead was driven (or attracted) to the surfaces of the chamber as before. Experiments were then tried in which all salts were omitted, gelatin and lead only being present in the colloidal solution. In this the colloidal particles behaved as before, moving again under the influence of light to the surfaces of the chamber.

An attempt was made to make a colloidal lead without any gelatin or salts, that is to say, in distilled water only, but the colloid was so unstable as to make it an unsatisfactory preparation for experiment. The particles frequently became agglutinated and fell out of suspension either in the processes of manufacture or later in setting up the microscopical preparation. It is evident, however, that the presence or absence of the salts in the menstruum is immaterial as far as the light effect is concerned, but whether the gelatin is influenced by the light as well as the silver and lead or rather than the silver and lead, we are unable to say at present.

The Effect of Serum in the Menstruum.

Serum was mixed with colloidal lead and exposed to light from the cardioid condenser. The lead colloid is extremely stable in the presence of serum and the light effect was produced exactly as in the absence of serum.

Measurement of Lead Particles.

Using a micrometer eyepiece, we have not found it possible to measure the size of the lead particles

in motion. By adding an equal quantity of 10% gelatin to the colloidal lead and letting the material set, the particles are seen to appear smaller than when they are in motion, but they are too small to be measured by direct methods. An attempt was made to photograph these particles stilled in the higher percentage of gelatin. If the long exposures required for the smaller particles were used, then the larger particles were grossly over-exposed. We have not been able to get satisfactoy photographs under these conditions. After subjecting the colloidal lead to the influence of light, however, and getting the particles to settle on the slide, it has been possible to measure the particles directly and on photographs. An illustrative photograph is attached (Figure II).

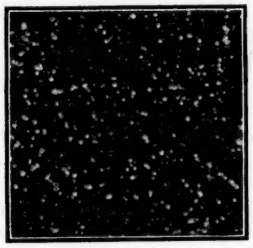

FIGURE II.

Photomicrograph of light-stilled colloidal lead particles. Illuminated by cardioid dark ground condenser. Magnification = × 1216.

Using this method of measurement we have found that the average size of the particles is approximately twice the size specified by Blair Bell as the maximum permissible in colloidal lead suitable for injection in the human subject. In Table II are given the measurements made from photographs of samples of three different batches of colloidal lead. These batches were prepared at different sparking voltages. The large particles were removed by centrifugalization and the residual particles of the sample were attracted to the slide by the influence of light.

The particles present in a given area of the photograph were arranged in various sizes according to the specified diameter to which they most closely approximated. If this method of measurement should ultimately prove permissible, we would suggest that the limit of size of the settled particle should not be more than 1 μ and the average size of the visible particles about 0·5 μ to 0·6 μ. The settling of the particles would have to take place under standard conditions.

General Remarks.

The foregoing experiments on the effect of light on lead and other colloidal solutions show that under the conditions specified the particles move under the influence of light. In the case of the lead and silver the majority of the particles move towards the light. They adhere tenaciously to the surface of the glass slide and are much larger than the original particles as observed immediately after the commencement of the experiment. Several questions which we propose to leave unanswered, arise from considering these results.

TABLE II.

To show the Frequency of Occurrence of the Various Sizes of Colloidal Lead Particles after they have settled, under the Influence of Light, on the Surfaces of the Chamber.

Batch 94.—Sparked at 230 volts, 10 ampères, direct current, from generator.		
23 particles measuring	0·18μ	
30 ,, ,,	0·27μ	
24 ,, ,,	0·36μ	
44 ,, ,,	0·45μ	
19 ,, ,,	0·54μ	198 particles counted of
24 ,, ,,	0·63μ	0·48μ average size.
15 ,, ,,	0·72μ	
4 ,, ,,	0·81μ	
15 ,, ,,	0·9 μ	
Batch 100.—Sparked at 80 volts, 20 ampères direct current, from accumulators.		
5 particles measuring	0·18μ	
10 ,, ,,	0·27μ	
11 ,, ,,	0·36μ	
16 ,, ,,	0·45μ	
17 ,, ,,	0·54μ	132 particles counted of
19 ,, ,,	0·63μ	0·63μ average size.
11 ,, ,,	0·72μ	
3 ,, ,,	0·81μ	
27 ,, ,,	0·9 μ	
13 ,, ,,	0·99μ	
Batch 101.—Sparked at 32 volts, 50 ampères, direct current, from accumulators.		
7 particles measuring	0·18μ	
13 ,, ,,	0·27μ	
10 ,, ,,	0·36μ	
19 ,, ,,	0·45μ	
11 ,, ,,	0·54μ	
9 ,, ,,	0·63μ	93 particles counted of
9 ,, ,,	0·72μ	0·53μ average size.
2 ,, ,,	0·81μ	
8 ,, ,,	0·9 μ	
4 ,, ,,	0·99μ	
1 ,, ,,	1·08μ	

NOTE.—Voltages indicated are taken on open circuit across the output of generator or accumulators.

Amperages are maximum current flowing when the electrodes touch in sparking and are controlled by suitable resistances placed in series with one of the leads to the electrodes.

During actual sparking only a small fraction (usually one-quarter to one-half) of the current indicated is actually flowing on account of the added resistance between the electrodes when separated. There is also a slight fall in voltage across the source as well as a considerable fall across the electrodes during sparking, as compared with the open circuit voltages.

First, does the light simply attract the majority and repel the minority of the particles (photophoresis)?

Secondly, does the light alter the electrical charge on the particles (photo-electric effect) so that some of them become oppositely charged and produce an ultra-microscopical agglutination which, though we cannot see it, may nevertheless take place? Similarly, are the glass surfaces to which they move, charged by the light?

Thirdly, is there any relationship between the size of the particles and their movements or between the size of the particles and the wave lengths of the effective radiant energies?

The answers to these inquiries lie outside the scope of the work of the Baker Institute.

In recent years several papers have appeared on photophoresis and it now seems definitely established that light may either attract or repel small particles. Furthermore, it may alter the charge of bodies exposed to it with the result that secondary

movements may occur. These facts, taken in conjunction with what is known relative to the movement of bodies in the eye under the influence of light, suggested a photomechanical explanation of vision. Emulsions were, therefore, made of the retina and subjacent choroid from the neighbourhood of the *macula lutea* of the ox. These were examined under the dark field, but no movements similar to those of the colloidal lead were observed. This subject appears to be worthy of further investigation.

The movement of silver particles towards the light may have some connexion with the pigmentation in argyria where according to Gwyn:[3]

> When skin pigmentation develops from internal use (*i.e.* of silver) it is at first in patches chiefly in areas much exposed to light; the patches afterwards coalesce and the whole surface, skin, conjunctiva and other visible mucous membranes ultimately show more or less pigmentation.

It seems to us possible that the effect we have described may play a part in the fixation of silver in the exposed surfaces in silver poisoned patients.

Conclusions.

1. Gelatin protected colloidal lead or silver particles can be caused to settle on the walls of the containing chamber by the action of light, chiefly on the surface near the source of light. The silver colloid is much more readily affected than lead.
2. Orange-yellow light (5,400 to 7,000 Ångström units) is not active in this reaction, while light of short wave length is exceedingly so.
3. Light which has passed through a Becker screen which cuts out the great bulk of visible light and lets through the ultra-violet light is active in the reaction.
4. The cutting out of the heat rays does not greatly, if at all, delay the reaction.
5. Emulsions of staphylococci were not affected like lead or silver emulsions.
6. The settled lead particles are larger than those moving and permit of easy measurement.

References.

[1] W. J. Penfold and Jas. Sutherland: Second Annual Report of the Baker Medical Research Institute, April 30, 1928.

[2] W. C. M. Lewis: "Some Physico-Chemical and Biochemical Aspects of Malignant Neoplasms," *The British Medical Journal*, November 26, 1926, page 920.

[3] N. B. Gwyn: Osler and McCrae, "Modern Medicine," Volume II, 1925, page 685.

THE ERYTHROCYTE SEDIMENTATION TEST IN LEAD ABSORPTION.

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AND

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THE erythrocyte sedimentation test was introduced by Fahreus in 1921. Since that date an immense number of observations has been made in many diseases and physiological conditions. It is not proposed to review the extensive literature in this present article. An excellent note on the previous status of the test may be found in an annotation in *The Lancet* of August 17, 1929. Fahreus claims and his claim is well supported by the evidence, that a reduction of the suspension stability of the erythrocytes is one of the commonest general reactions of the organism to disease, comparable to such reactions as pyrexia and leucocytosis, with which it has many features in common, but not running parallel with either of them. On account of its non-specific character it is as a rule less instructive in the diagnosis of disease than indicative of the intensity or activity of the morbid process which may be present.

As far as is ascertainable from the available literature, no series of estimations of the suspension stability of the erythrocytes has been made in cases of lead absorption or lead poisoning. It was decided, therefore, to determine it in a series of cases referred to the Commonwealth Health Laboratory, Port Pirie, by local practitioners for laboratory investigation as suspected cases of plumbism. Each patient was examined clinically and a tentative diagnosis made before any laboratory tests were done. The men examined were all employees of the Broken Hill Associated Smelters, Proprietary, Limited.

There are many methods of performing the sedimentation test, differing according to the amount of blood required, the type of anticoagulant used and the method of taking the final reading. As routine venipuncture was considered undesirable, a finger prick method was adopted, a single prick providing the blood necessary for an erythrocyte count, hæmoglobin estimation, suspension stability test and the preparations of blood films.

By finger prick 0·2 cubic centimetre of blood is obtained and placed in a small tube containing 0·05 cubic centimetre of a 2·5% solution of sodium citrate. Of this citrated blood 0·1 cubic centimetre is taken in a 0·1 cubic centimetre pipette graduated in hundredths. The pipette is sealed with a rubber band and placed in a vertical position. At the end of one hour the height of the clear column of plasma above the sedimenting red cells is noted. The figure thus obtained is the percentage sedimentation of the erythrocytes in one hour.

In addition in each case an erythrocyte count was done; the percentage of hæmoglobin was estimated by Newcomer's method and the films, stained by Sellar's method, were examined for punctate basophilia. From the stained films the number of stippled cells per million red cells was estimated approximately and the degree of stippling recorded thus:

Very slight	Up to 100 per million
Slight	100 to 500 per million
Moderate	500 to 2,500 per million
Extensive	2,500 to 10,000 per million
Very extensive ..	10,000 to 30,000 per million
Extreme	30,000 per million upwards

In Table I are summarized the findings in the first thirty-six persons examined.

TABLE I.

No.	Degree of Stippling.	Sedimentation Index.	Erythrocytes in Millions per Cubic Millimetre.	Hæmoglobin Percentage (Haldane).	Clinical Diagnosis.
1	Very extensive	6·5	6·0	81	Plumbism.
2	Very extensive	7·5	5·1	78	Plumbism.
3	Very extensive	8·0	5·1	71	Plumbism.
4	Extensive	10·0	4·3	84	Plumbism.
5	Extensive	8·0	3·9	70	Plumbism.
6	Extensive	8·0	4·5	82	Plumbism.
7	Extensive	6·0	6·8	100	Doubtful.
8	Extensive	5·0	5·1	86	Plumbism.
9	Extensive	4·0	7·7	90	Plumbism.
10	Extensive	4·0	3·3	68	Plumbism.
11	Moderate	6·0	4·2	82	Plumbism.
12	Moderate	5·0	4·2	71	Plumbism.
13	Moderate	4·0	6·0	100	Plumbism.
14	Moderate	3·0	4·5	89	Plumbism.
15	Moderate	3·0	4·8	89	Plumbism.
16	Slight	4·0	5·0	87	Plumbism.
17	Slight	1·0	5·9	96	Indefinite.
18	Slight	0·6	5·6	110	Indefinite.
19	Slight	12·0	4·6	77	Previous severe plumbism.
20	Very slight	3·0	4·6	97	Indefinite.
21	Very slight	2·0	4·9	103	Plumbism.
22	Very slight	2·0	5·5	101	Indefinite.
23	Very slight	2·0	5·0	90	Nil. (Previous plumbism.)
24	Very slight	1·0	6·2	97	Indefinite.
25	Very slight	1·0	5·4	102	Indefinite.
26	Very slight	1·0	5·0	83	Indefinite.
27	Very slight	0·9	5·5	88	Indenfiite.
28	Very slight	0·5	5·9	110	Indefinite.
29	Very slight	0·5	4·0	83	Indefinite.
30	Very slight	0·2	5·5	101	Indefinite.
31	No stippling	3·0	5·5	95	Nil. (Previous plumbism.)
32	No stippling	2·0	5·6	91	Indefinite.
33	No stippling	1·5	4·5	90	Indefinite.
34	Moderate	60·0	2·3	?	Chronic nephritis and cardiac failure.
35	Very slight	20·0	4·6	88	Chronic bronchitis.
36	No stippling	28·0	4·1	94	Pulmonary tuberculosis.

Reference to Table I will show that the sedimentation rate runs closely parallel to the degree of stippling of the red blood corpuscles, the rate of sedimentation rising with the stipple cell count. The correlation is not absolute, nor is it possible in any individual case to predict the sedimentation rate if the percentage of stipple cells be known. Nor would that be expected. The suspension stability of the red cells is affected by various factors, notably the number of red cells per cubic millimetre.

Table II shows the average sedimentation index for the various grades of stippling.

TABLE II.

Degree of Stippling.	Number of Observations.	Average Sedimentation Index.
Very extensive	3	7·3
Extensive..	7	6·4
Moderate..	5	4·4
Slight	4	4·4
Very slight	11	1·3

None of the persons whose blood manifested very slight or no stippling, had a sedimentation index higher than 3·0 and the average figure for these seventeen cases is 1·5; 1·5 was the average reading found by Townsend and Rogers[1] in the examination of fifty presumably healthy subjects. None of the fifteen persons with moderate or more than moderate stippling had a sedimentation index less than 3·0, the average figure for the fifteen being 5·9.

It is usually accepted that stipple cell counts of less than 100 per million are not significant in the diagnosis of lead poisoning and most observers would regard a count of over 500 per million as strong confirmatory evidence of lead poisoning. Those cases in which there is slight stippling (according to the standard given above) are more difficult to assess and in these a determination of the sedimentation rate may help in making the diagnosis.

There were four such cases in this series. Cases XVII and XVIII which did not present the typical clinical features of plumbism, showed normal sedimentation rates. Case XVI which showed a raised sedimentation rate, was diagnosed as one of lead poisoning on clinical grounds. Case XIX is the one exception in the series to the parallelism between the sedimentation rate and the degree of punctate basophilia.

The man in this instance had been examined three months previously, when he had manifested both the clinical and laboratory signs of severe lead poisoning. His blood films had shown very extensive stippling. At that time the sedimentation rate was not being determined. At the time of the examination referred to and the results of which are shown in the table, he still showed marked clinical signs though he had had no further exposure to lead during the previous three months.

It will be noticed that both his erythrocyte count and his hæmoglobin percentage were well below normal. In this particular instance the sedimentation rate appeared to be a better index of the clinical condition of the patient than was the degree of punctate basophilia. It is an established fact that the number of stippled cells in the blood may rapidly diminish on cessation of exposure to lead long before the clinical symptoms are ameliorated.

Three persons in this small series had a sedimentation index of 20 or more. These were all suffering from some disease (other than plumbism) known to increase the sedimentation rate. The cardio-vascular-renal syndrome of patient 34 did not appear to have been caused by lead. Patient 36 proved to have pulmonary tuberculosis, with tubercle bacilli in the sputum. Patient 35 had a severe chronic bronchitis.

Conclusions.

1. The results recorded are in accordance with the contention of Fahreus that the sedimentation rate of the erythrocytes is an index of the intensity of the morbid process, in this instance plumbism.

2. The sedimentation rate is raised in plumbism, but is low in comparison with many other morbid conditions.

3. A sedimentation reading, by the method described, over fifteen in a case of suspected plumbism, directs attention to the probability of the patient's symptoms arising from some other cause than lead poisoning.

4. The fact that the stipple cell counts of less than 100 per million were associated with normal sedimentation rates, suggests that stipple cell counts of less than 100 per million in films stained by Sellar's method should not be regarded as significant in the diagnosis of lead poisoning in the absence of strong confirmatory evidence.

5. The sedimentation test appears to be a useful adjunct to the laboratory methods of investigation of plumbism, particularly in cases which show only slight stippling, as it appears to indicate roughly the extent of the poisoning.

Reference.

(1) D. Townsend and H. B. Rogers: "A Contribution to the Study of Erythrocyte Sedimentation Reaction," *The Journal of Laboratory and Clinical Medicine*, June, 1928, page 819.

Reports of Cases.

LEIOMYOMA OF THE STOMACH.

By RUPERT A. WILLIS, M.D. (Melbourne),
Medical Superintendent, Austin Hospital for Chronic Diseases, Heidelberg, Victoria.

LEIOMYOMATA of the stomach are not common and, even when present, they rarely attain to clinically important dimensions. These tumours may be single or multiple and may be located in any part of the organ. They may be intramural, submucous or subserous and in the last named situation they frequently become pedunculated. Kaufmann(1) who appends a copious bibliography concerning myomata and related tumours, states that elderly females are the most frequently affected and records an unusually large tumour of this kind which occasioned discomfort for ten years before eventually causing severe symptoms by undergoing axial torsion. The following somewhat similar case is deemed worthy of record, not only on account of the large size of the tumour, but also because of the diagnostic perplexities which it occasioned.

Clinical History.

A female patient, aged seventy-six years, enjoyed good health until 1922 when she began to suffer from persistent aching pain in the lower dorsal region of the back, worse in the erect posture and on movement. She noticed also a "lump" in the left upper quadrant of the abdomen. Her doctor who attended her about this time for an attack of diarrhœa followed by severe constipation, advised her of the serious possibility of a tumour of the bowel, but the patient declined operation. Early in 1923 she noticed an abnormal prominence of the lower thoracic region of the spine, accompanied by aggravation of the backache in this region. Save for these disabilities, she remained in good general health up to the date of admission to the Austin Hospital in November, 1924, under the diagnosis of "carcinoma of the bowel."

Examined on admission, the patient appeared well nourished and in good general health. The heart and lungs were normal. In the left hypochondrium an ovoid mass, rather larger than an orange, and represented in Figure I, was palpated. This was movable, slightly tender and dull to percussion. No notched edge could be felt. The liver was not palpable and no other abdominal abnormality was detected. Examination of the spine disclosed rigidity and prominent dorsal deformity of the lowest three thoracic vertebral spines. No neurological abnormalities were discovered. Blood examination at this time revealed a red cell count of 5,000,0000 per cubic millimetre, a leucocyte count of 10,000 and a normal film.

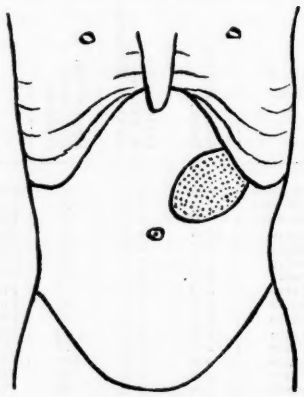

FIGURE I.
Representing the size of the palpable tumour in November, 1924.

As the patient declined any surgical or X ray therapy, no further special investigations were proceeded with. She remained in bed in much the same condition during the ensuing year. In January, 1926, her health was good, with no signs of cachexia or emaciation, no symptoms referable to any intestinal lesion and no hepatic changes. The abdominal tumour was perhaps slightly larger than formerly, but was otherwise unchanged. Doubts of the accuracy of the diagnosis began to be entertained and further investigations were instituted. A skiagram of the spine disclosed the typical appearance of old tuberculous caries of the last five dorsal vertebræ with collapse of the ninth and tenth vertebral bodies. The Wassermann test yielded no reaction. Casoni and hydatid complement fixation tests gave no reaction. Fouchet's test for serum-bilirubin gave no reaction. Blood examination again revealed no abnormalities.

During the ensuing period of nearly two years the patient maintained the same general state of health, the only perceptible alteration being slow progressive enlargement of the abdominal tumour. By December, 1927, this had attained a size depicted in Figure II, extending below

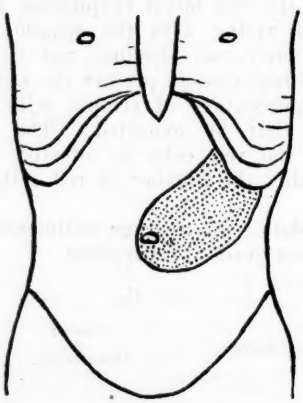

FIGURE II.
Representing the size of the palpable tumour in December, 1927, that is, three years later than in Figure I.

the level of the navel and slightly across the mid-line. It was still rounded and non-notched in contour, slightly movable, tender and dull to percussion. It was regarded as probably some unusual form of primary splenomegaly.

On December 24, 1927, sudden and unexpected death occurred in an attack of acute dyspnœa of only a few minutes' duration. The patient's age at death was eighty-one years.

Autopsy. Findings.

The body was well nourished. The lungs were normal, save for slight adhesion of the left lung to the posterior parietes. The heart exhibited conspicuous patchy pallor of the myocardium which was flabby and exhibited fatty infiltration from the epicardium. The coronary vessels and the root of the aorta were the seat of moderate atheromatous changes. The endocardium was normal.

The upper part of the abdominal cavity presented many firm bands of adhesions between the stomach, spleen, liver, transverse colon and anterior abdominal wall. The liver was small and congested and extensively adherent to the diaphragm. The spleen was normal. Occupying and distending the lesser sac and attached to the middle of the posterior wall of the stomach by a narrow vascular pedicle, was a firm, smooth ovoid tumour measuring fifteen by ten by nine centimetres (Figure III). Its longest diameter lay nearly transverse to the long axis of the body, but the tumour was freely movable and was entirely non-adherent to adjacent structures. The approximate weight of the formalinized tumour was nine hundred grammes. The stomach, transverse colon and gastro-colic omentum were displaced forwards by the mass. All other abdominal and pelvic viscera were substantially normal. Section of the tumour exhibited much old and recent hæmorrhagic degeneration with extensive honeycombing by small cystic areas. A narrow peripheral zone of firm white tissue with a glistening whorled structure was present and trabeculæ of similar tissue were present between the cystic spaces in the central parts of the growth. The brain, spine and cervical organs were not examined.

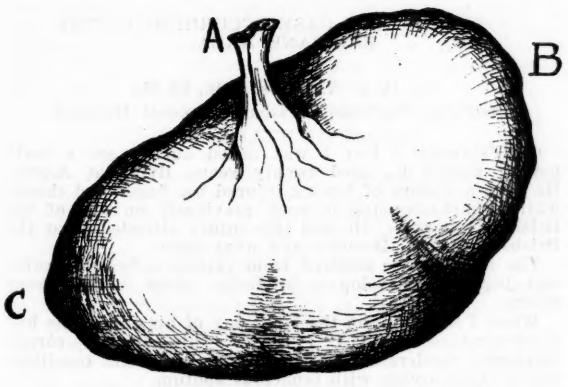

FIGURE III.

Anterior aspect of the tumour. A is the vascular pedicle arising from the posterior wall of the stomach. B is the left pole of the tumour in contact with the spleen. C is the right pole in contact with the pylorus and head of the pancreas.

Histological Findings.

Sections from the well preserved peripheral parts of the tumour exhibited the characteristic whorled structure of leiomyoma (Figure IV). The only other neoplasm which might possibly occasion confusion is spindle-celled sarcoma. Careful search, however, failed to reveal any areas of anaplasia, the tumour cells throughout being typical quiescent smooth muscle fibres. No mitotic figures could be found. The known duration of the growth, six years, without local invasive developments or the formation of metastases also indicates its benign character. Fibrous stroma was not abundant in the tumour, muscular tissue decidedly predominating over connective tissue. Blood vessels were well formed and not plentiful. The central cystic areas exhibited degenerative changes, recent hæmorrhage and old pigment deposition with intervening strands of residual fibro-myomatous tissue.

Comments.

1. Noteworthy are the diagnostic difficulties occasioned by the tumour which was regarded by competent clinicians first as a carcinoma of the colon and later as an enlarged spleen. Indeed it is difficult to see how a correct *ante mortem* diagnosis could have been made except by laparotomy.

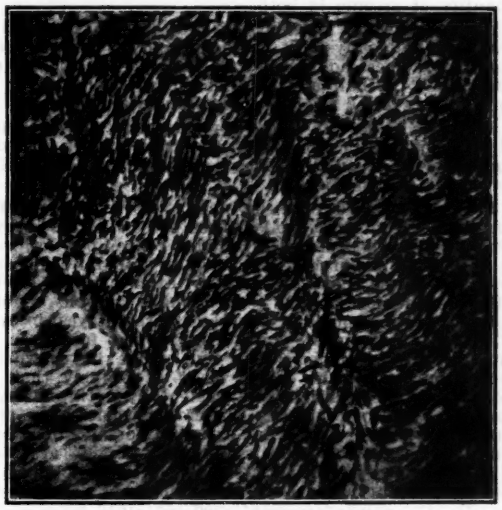

FIGURE IV.

Photomicrograph from the periphery of the growth, showing the usual whorled structure of leiomyoma. × 180.

2. The present case conforms with Kaufmann's statement that the majority of such tumours occur in elderly females.

3. The practical deduction to be drawn is that if a middle-aged or elderly woman presents a movable upper abdominal tumour of long duration and of uncertain nature, the diagnosis of gastric myoma demands serious consideration. Usually laparotomy will be the only means of confirming this diagnosis and this step should be taken promptly, for the benignancy or otherwise of the tumour must remain in doubt until it is subjected to pathological examination.

Acknowledgement.

I am indebted to Dr. J. F. Chambers, Honorary Physician to the Austin Hospital, for his consent to my recording this case.

Reference.

(1) "Kaufmann's Pathology," Reimann's Translation, Philadelphia, 1929, Volume I, page 691.

UNUSUAL POISONING BY ARSENIC.

By ARTHUR A. PALMER, M.B., F.R.C.S. (Edin.),
Government Medical Officer, Sydney.

THE following appears to be unusual enough to merit recording.

Two brothers, aged seventy-two and seventy years, and a sister aged fifty-eight years, living together in a farm house, were all taken ill with similar symptoms. The younger brother was the first to consult a doctor in October, 1929, and shortly afterwards he was sent to the Royal Prince Alfred Hospital suffering from peripheral neuritis; in a week or so, the older brother was sent to the Mater Misericordiæ Hospital with the same trouble

and a few weeks later the sister arrived in the Royal Prince Alfred Hospital suffering with much the same symptoms which, she says, came on with pain in the right hand, then in the feet, followed by tenderness and loss of power in all four limbs.

The older brother was under the care of Dr. Leslie Dunlop who had some of the hair and nails sent to the Government Analyst and the latter found a considerable quantity of arsenic in both.

A similar cause was suspected at Royal Prince Alfred Hospital, but analysis of the urine and of the wall paper from the homestead revealed no arsenic. At a later date analysis of the hair and nails of the younger brother and the sister revealed the presence of much arsenic.

The hair of a farm hand, a young man who took most of his meals with the family, contained much the same quantity of arsenic, although he showed no definite symptoms of poisoning.

Inquiries showed that the sister who did the cooking, was subject to occasional illness, described as nervous breakdowns, when she was confined to her bed for weeks at a time and the brothers had then to shift for themselves. It is understood that they were not experts in the kitchen. All three denied having ever brought arsenic or other poison into the house, at any rate in recent years. A tin of arsenite of copper—Paris Green—was found on the kitchen shelves among other tins, of baking powder *et cetera*, but its bright colour made it unlikely that this would have been used either accidentally or intentionally. Later it was found that the sister had some years previously bought some white ant exterminator and the sample from the agents showed this to consist of 50% arsenic as a grey powder mixed with sawdust. She explained her denial of having had arsenic in the house by her ignorance that the two substances mentioned contained arsenic. The white ant exterminator was sold to her in a pepper tin with a perforated top.

A very large number of articles was analysed by the Government Analyst, Mr. Doherty, and his officers, ranging from baking powder to the dry stain in a bed chamber, and finally it was found that the household pepper pot contained 12% of arsenic with some sawdust and the rest pepper, there being then about 1·08 grammes (eighteen grains) of arsenic remaining in the pot.

It is supposed that the tin and contents originally sold to the sister were placed on a kitchen shelf and its contents used by the brothers to replenish the pepper pot.

The patients are still largely crippled as a result of the poisoning.

An interesting point is the duration of the period after the intake of arsenic during which measurable quantities of arsenic can be found in the hair and nails. In this case no more arsenic could have been taken after early in November, 1929, and yet there was much arsenic present in February.

In regard to the farm hand there was a big drop from 7·5 milligrammes per hundred grammes on February 28, 1930, to 0·4 milligramme on March 20.

We can therefore say that measurable quantities may be found in the hair and nails for at least four months after the last dose has been taken.

This question has been well dealt with by Althausen and Gunther, of the University of California, in reporting seven cases of acute arsenic poisoning which arose in much the same way and had many resemblances to the cases now being reported. They quoted Heffner and Willcox as reporting the presence of traces of arsenic in the hair as long as eleven months after a single dose and two years after prolonged therapeutic administration, but "traces" is not a very satisfactory finding, as in these days of the free use of arsenic in the vegetable garden, orchard and in many other ways, traces could be found in the hair of very many people who have never suffered from arsenic poisoning.

As a result of their investigations these American workers concluded that the hair is one of the main channels for the elimination of arsenic from the body; that in fact the liver is the only organ that occasionally surpasses the hair in its arsenic content and this only when death occurs within a few days after ingestion of the poison. It may be mentioned that apparently the presence of arsenic in the hair has not so far been reported within about five days of its having been taken into the body. In one of their cases the hair, even after four and a half months, in spite of having been closely clipped a month previously, contained 0·69 milligramme of arsenic per hundred grammes.

They do not agree with Willcox that arsenic deposited in the hair and nails is gradually reabsorbed and excreted in the urine and fæces. As treatment they strongly recommend the administration of sodium thio-sulphate which was found to cause a definite increase in the deposit of arsenic in the hair and in its elimination through the urine and fæces, as well as an almost immediate clinical improvement in the patients.

The results of analyses carried out by the Government Analyst, Mr. Doherty, and by Dr. Taylor, Senior Assistant Government Analyst, are shown in the accompanying table.

TABLE SHOWING RESULTS OF CHEMICAL EXAMINATIONS IN ARSENIC POISONING.

Name.	Date of Receipt.	Nature of Specimen.	Weight of Specimen in Grammes.	Arsenic, Milligrammes per 100 Grammes.
C. M.	3/2/1930	Hair Nails	0·89 0·09	8·5 5·5
A. M.	21/2/1930	Hair Nails	2·05 0·27	3·0 5·5
J. M.	24/2/1930	Hair Nails	4·0 0·055	7·5 22·0
—. D.	28/2/1930 20/3/1930	Hair Hair	4·0	7·5 0·4

A TYPHUS-LIKE CASE OCCURRING IN THE BRISBANE AREA.

By D. A. A. DAVIS, M.B., Ch.M.,
Honorary Physician, Brisbane General Hospital.

ON February 7 last I was called out to see a male patient named L., aged twenty years, living at Aspley. He gave a history of having injured his finger and thumb while wharf-labouring a week previously on one of the Brisbane wharves. He had this injury attended to at the Brisbane General Hospital and went home.

The next day he suffered from various aches and pains and began to develop a headache which became very severe.

When I saw him, on the sixth day of his illness, he had a temperature of 40·4° C. (104·8° F.), his pulse was correspondingly accelerated, he had pharyngitis, slight tonsillitis and a slight cough with tenacious sputum.

I inspected the wounds on his thumb and fingers. They were not quite healed, but there was nothing there to suggest a toxæmia from them.

The heart and lungs were clear. The abdomen was soft and the spleen just palpable. The headache was intense and the pain was referred to the left temporal area. The high temperature and severe headache persisted for three days in spite of two intramuscular injections of "S.U.P. 36" and various influenzal analgesics and antipyretics.

On the evening of the seventh day a rash, resembling in some respects measles and in others typhoid "rose spots," appeared on the body, limbs and slightly on one side of the face. I elicited the fact that he had been handling a lot of wheat on the wharves for several weeks past and I began to suspect him as suffering from a condition similar to those described by Dr. Hone, of Adelaide.

The rash had faded on the eleventh day and the headache and pyrexia subsided as the rash commenced to fade. No pulmonary complications occurred. Very troublesome constipation and marked albuminuria were a feature of the disease.

On the twelfth day of the illness Dr. N. M. Gutheridge carried out a Weil-Felix test and the patient's serum

agglutinated *Bacillus proteus X* 19 up to a dilution of one in 320 of the serum.

There was no further recurrence of pyrexia and the patient was able to get out of bed on the fourteenth day and made a good recovery. No other member of the family contracted the disease.

Reviews.

A MANUAL FOR TUBERCULOUS PATIENTS.

"GETTING WELL AND STAYING WELL," by Dr. John Potts, of Fort Worth, Texas, as its title suggests, is a book that should appeal to all readers.[1] The clear, yet simple manner in which the author shows when tuberculosis should be suspected, can be understood by everybody. The importance of the many minor personal symptoms of subnormal health, so frequently missed even by the patient himself, are specially mentioned, while ordinary symptoms are not overlooked. Of special importance also to medical practitioners is the chapter on diagnosis.

As the book has been largely written for laymen, every effort has been made to deal specifically with their many difficulties. Special reasons are given why the diagnosis, when proved correct, should be fully accepted and treatment not delayed. The necessity of the tuberculous person learning and understanding tuberculosis is insisted on and as a means to this end sanatorium treatment is mentioned as a natural method, the value of which will depend not only on the routine laid down, but on the manner in which each patient adheres to that routine. Rules for the guidance of tuberculous persons under the varying conditions of life are given in detail, showing a wide experience.

The disappointing portion of the book is in its closing chapters. That part dealing with "How to stay well" lacks definiteness and is confused by matter of less importance. Apart from this, the book is written in so simple a style and is so full of what a person interested in tuberculosis should know, that it should be of great interest and assistance to the general public, the visiting health nurse and to the general practitioner.

A RADIOLOGICAL ATLAS.

THE radiological examination of the soft tissues of the neck is a subject which has strangely enough been neglected. Clinicians and indeed many X ray specialists do not realize its full value and regard this as being limited to foreign bodies and neoplasms.

"The Neck," a monograph by Percy Hay, M.D., forms the ninth volume of the *Annals of Roentgenology* edited by Dr. James T. Case and is easily the most complete work that has appeared on this subject.[2] We regard it as a most valuable contribution to the scanty literature. The early part of this treatise is devoted to a consideration of the radiological appearances of normal necks and the variations due to age, sex and individual anatomical characteristics and the author then passes to a detailed study of a large series of pathological conditions. The air-filled pharynx, larynx and trachea are clearly demonstrated in the skiagrams owing to their contrast with the soft tissues.

Careful measurements have been made of the post-pharyngeal and post-tracheal space at various ages and the results are expressed in terms of the diameter of the body of the fourth or fifth cervical vertebra. This proportion was for practical purposes found to be constant. The normal limits are given and the author states that if these be exceeded a pathological condition is undoubtedly present. Great stress is laid upon the importance of lateral skiagrams of the neck in cases of retropharyngeal or retrotracheal abscess. In these conditions the space is invariably increased and the taking of a lateral skiagram is claimed to be the most reliable method of making the diagnosis. A warning is given that in infants a skiagram must be obtained in inspiration as well as expiration, since the post-tracheal space is definitely smaller in inspiration than in expiration. Benign and malignant stenoses of the trachea can be located and it is particularly useful in stenosis caused by a substernal thyreoid gland or a thymic enlargement. In thyreoid enlargement the deviation and compression of the trachea can be observed.

In obstructed respiration in children the thymus, even when apparently enlarged, should not be blamed, unless actual encroachment on the lumen of the trachea can be demonstrated. If the trachea does not appear to be compressed, the author recommends that a bronchoscopic examination be made. In this book much that is new and interesting will be found and it cannot fail to bring home to those who are fortunate enough to read it, the value of radiological investigation of the neck.

The printing and illustrations conform to the high standard of other volumes of the *Annals of Roentgenology*.

TUBERCULOSIS.

WE must confess to experiencing a certain feeling of weariness of the flesh on reading the title of a monograph by Dr. Hulliger. "A New Treatment of Tuberculosis" is such a hackneyed subject.[1] Let it be said at once, however, that the author's treatment of it is distinctly original; we have met nothing like it before in medical "literature." The book is pure propaganda and lacks a scintilla of scientific evidence. Though he presumes to "present this work to the medical profession and to the public," it is for the latter that he has written. That his object is to capture patients is proved by the advertisement of his nursing homes which occupies the last page of the book.

His "specific for tuberculosis," he states, is a "compound of various metallic salts." Before discussing his treatment in detail, he clears the air by demolishing in a number of sketchy chapters most of the recognized forms of treatment at present in use against tuberculosis. Change of air, sunlight, tuberculin, artificial pneumothorax, all are disposed of with little, if any, regard for scientific accuracy. Then follows some nonsense on why his treatment is "specific" for tuberculosis. "The reaction of the tubercular seats provoked by our treatment proves its specificity." "Up to now no treatment has had the power to act systematically on all tubercular affections. Our treatment has enabled us to fill this gap." In a discussion on dosage no amounts are given, but the interval between doses varies between ten days for "first degree" cases to six months in "third degree" cases. "A complete course consists of twenty injections." Patients with advanced infections have rather a prolonged course, it would appear! The injection, by the way, is given subcutaneously and evokes no local reaction—a curious fact.

His chapter on "results" is delightful. "These reactions are for us . . . our results." And there he leaves it. The published results of other treatments are of "no scientific value: they are advertising results." A disingenuous statement. We are then treated to some twenty photographs of the "before-and-after" type. Some of the captions merit quotation. The fifth case is "tuberculosis of the lung with bacilli in the expectorations. Cure (from the clinical point of view) obtained in 13 days"!

Chapter 11, entitled "Statistics and Conclusions," sounds promising; the reader looks for some definite figures. Instead, he is regaled with a diatribe on how statistics should be given. "They cannot be expressed in numbers," writes Dr. Hulliger, and he entirely evades the question. The following consecutive sentences in this chapter are good: "No, let us remain scientific. As we have seen, the most harmless medicine can sometimes cure the gravest case of tuberculosis of the lungs."

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[1] "Getting Well and Staying Well: A Book for Tuberculous Patients, Public Health Nurses and Doctors," by John Potts, M.D., with an introduction by J. B. McKnight, M.D.; Second Edition; 1930. St. Louis: The C. V. Mosby Company; Melbourne: Stirling and Company. Demy 8vo., pp. 221. Price: $2.00 net.

[2] "Annals of Roentgenology: A Series of Monographic Atlases," Edited by James T. Case, M.D. Volume IX: The Neck, by Percy D. Hay, Jr., M.D., with an Introduction by Henry K. Pancoast, M.D.; 1930. New York: Paul B. Hoeber, Incorporated. Demy 4to., pp. 124. Price: $8.00 net.

[1] "A New Treatment of Tuberculosis," by Pierre Hulliger, M.D.; 1930. London: H. K. Lewis and Company, Limited. Demy 8vo., pp. 156, with illustrations. Price: 8s. 6d. net.

Part II then follows, comprising forty pages of "What every tubercular patient should know." It is crude and inaccurate. Some quotations show that Dr. Hulliger is an unconscious humourist. "All consumptives who bathe catch cold." "Consumptives must always live in the shade." "The tubercular patient should masturbate only very rarely; for instance, once every two or three weeks." "Motoring may be allowed but very moderately, on account of the continual trepidations, which are in the long run harmful." "We must persuade our patients that they should always be good tempered, and then they must learn to smile every day at nothing or at next to nothing."

The last chapter has the intriguing title "And our exact formula?" His first paragraph stifles further comment. "Evidently we shall give our exact formula some day. But before giving it, we desire the medical profession to acknowledge our results and our reactions, and to state officially whether our treatment is specific for tuberculosis or not."

This is a wholly preposterous book and should have never seen the light of day.

THE OVARIAN HORMONE.

IN his recent publication, "The Female Sex Hormone," Robert T. Frank, of New York, deals with the subject in a very comprehensive manner.[1] The book is divided into two parts. The first part, dealing mainly with the biology, pharmacology and chemistry of this particular substance, indicated by the title of the book, should prove of interest to laboratory and research workers. The more important experiments, tests and researches of the last twenty-five years are dealt with as fully as possible in a book of this size and in a very easily readable way.

The most important result from a clinical standpoint is the elaboration of a procedure which can be carried out in any properly equipped laboratory whereby the presence or otherwise, and also the degree of concentration of the "female sex hormone" can be determined from a forty cubic centimetre sample of patient's blood.

The second part of the book which deals with clinical investigation and therapy, should be of great interest to all interested in endocrinology and especially gynæcology.

Methods of investigation of patients suffering from some disturbance of ovarian function are dealt with very fully. The author also indicates how, by means of his blood test, the differential diagnosis of pregnancy from certain other conditions which up to the present has been difficult, may be simplified. In another chapter he reviews the subject of organotherapy as applied to gynæcology. The conclusion to be gleaned is that up to the present no reliable preparation containing the "female sex hormone" has been produced. He also points out that the prescribing of many of these preparations only subjects patients to large expense without any therapeutic benefit.

In the chapter on "Treatment of Functional Diseases of the Genital Tract in the Female" he indicates very useful methods which as a result of his large experience he has found of benefit, and which those interested in this particular subject could take as a very useful guide.

Briefly, the book presents a survey of our present knowledge of the subject. It should prove a stimulus to those interested in the research aspect and a very useful guide to those interested in the clinical side of this somewhat difficult subject.

DIATHERMY.

NOTWITHSTANDING all that has been written in its favour physical therapy is still under suspicion with a percentage of the medical profession. "Diathermy in General Practice," by Dr. Eric Payten Dark, a graduate of the University of Sydney, should assist in reassuring the doubters so far at least as diathermy is concerned.[2] The book should be helpful to those who are already using this form of physical treatment and those who contemplate its employment. Even to others who harbour doubts as to its efficacy, the considered judgement of one who has used it in a number of cases, should carry conviction. In his preface Dr. Dark states that he began the use of the remedy with a wholesome weight of scepticism. In the following sentence he states that he cannot remember one patient who failed to get some good when diathermy was given a thorough trial. This is perhaps a little more than all those who use diathermy extensively, will be prepared to say. But there can be no doubt that, when administered with discrimination and due care, diathermy is a powerful adjuvant to other forms of treatment. In his technique Dr. Dark differs in a few minor details from Cumberbatch, Stewart and others. But in the main his methods are those generally employed. These he clearly explains by means of his pen and excellent illustrations. The most interesting feature of his book is the series of patients treated. Dr. Dark is to be congratulated on his results. Possibly he was fortunate in that the fibrositis of his patients was acute. In more chronic forms of this complaint it is sometimes necessary to replace or supplement diathermy with other physical remedies before obtaining results.

Dr. Dark uses long treatments and comparatively heavy currents. His results justify his methods, but beginners should be told that less strengths of current used over a prolonged period will sometimes prove efficacious. In the cases included under "Injuries" he has again obtained notable successes. This is in accord with the experience of others. So far as sciatica is concerned, Dr. Dark has been fortunate. In some instances this complaint does not respond to diathermy. As regards pneumonia, those who have used the treatment, advocated by Stewart and explained in this book, have had good results. Diathermy is of surgical as well as of medical use and Dr. Dark gives a clear exposition of its value from this aspect. The foreword by Dr. Scot Skirving and Dr. Maguire's chapter on "Diathermy in Gynæcology" give additional value to the book. Dr. Dark offers a very helpful work to the medical profession. It should do much to dispel ignorance and prejudice.

PERSONAL HYGIENE.

"HEALTH WITHOUT FADS" is quite an entertaining little book written in facetious vein by Dr. Robertson Wallace.[1] Obviously it is meant for the layman of only average intelligence whose literature must be light and amusing. The language is rather extravagant and fantastic and reads in parts like an advertisement for a patent medicine. Nevertheless it contains some sound common sense and good principles, gives a simple and broad idea of what good health means and shows how it can be supported by natural methods. The author wages a wordy warfare against the "food-faddist, the drink crank, the square-toed specialist, the dumb-bell-and-developer devotee, the patent-potion man and the anti-everything-that's-good brigade." Exercise must be suited to the constitution and occupation of the individual and great muscular development is not necessary for good health. In the chapter on food we learn that "a part of the bellowing ox of the beginning of the week may be a portion of the quiet citizen towards the end," that a mixed diet is best and that we must not "hearken to the seductive voice of the vegetarian, the fruity voice of the fruitarian" *et cetera*. The author's opinion that over-indulgence in meat is much more common and much more productive of evil than over-indulgence in carbohydrates is open to argument. He favours *aqua pura* as a beverage, but does not condemn the modest "nightcap." The last chapter deals with the cleansing and clothing of the skin. Warm baths and light clothes are advocated and cold baths are looked upon almost as feats of daring and tests of hardihood. An obvious effort to be witty and epigrammatic rather detracts from the value of the book, but makes it quite amusing and, maybe, quite helpful to certain people.

[1] "The Female Sex Hormone," by Robert T. Frank, A.M., M.D., F.A.C.S.; 1930; London: Baillière, Tindall and Cox. Crown 4to., pp. 321, with illustrations. Price: 25s. net.

[2] "Diathermy in General Practice," by Eric Payten Dark, M.C., M.B., Ch.M.; 1930. Sydney: Angus and Robertson. Demy 8vo., pp. 165, with illustrations. Price: 25s. net.

[1] "Health Without Fads, a Common-sense Manual," by Robertson Wallace, M.B., C.M.; 1930. London: Methuen & Company Limited. Crown 8vo., pp. 120. Price: 3s. 6d.

The Medical Journal of Australia

SATURDAY, JUNE 7, 1930.

The Medical Journal of Australia Advertiser.

IN the days of the Grecian and Roman Empires advertising for both public and private purposes was carried out by signs and criers. Both these methods served their purpose well and both are still in use, though it must be admitted that the town crier has nearly passed into history. It was the advent of printing which provided an adequate medium for advertising. With the progress of industry in the nineteenth century, with the production of new commodities and with the stimulation of the needs of the community, advertising became a prominent and permanent feature of commercial life. By advertisement the manufacturer or the merchant is enabled to reach a large number of people and the people in turn gain information which is useful, and they possibly learn facts which are to them in the nature of an education. There are some people who are always ready to believe anything that they read in a newspaper. Some, it may be thought, are wiser and believe nothing appearing in newsprint until it has been verified; this type of cynicism often has some foundation in experience. It would thus appear essential that newspapers and journals, if they are to be regarded as of sound standing and high repute, should contain no advertising statements or catch phrases which are untrue or ambiguous or even exaggerated.

Sometimes medical practitioners have been known to deplore the fact that scientific journals find it necessary to include advertisements within their covers. Advertisements are admittedly a valuable source of revenue and the management of a journal such as this has reason to welcome the would-be advertiser. But even if it were possible by reason of endowment or size of circulation to conduct without advertisements a weekly medical journal which is sent to every medical practitioner in the Commonwealth, it would not be right to run it on these lines. THE MEDICAL JOURNAL OF AUSTRALIA acts as the medium of scientific thought for the medical profession of Australia, but it has a function to perform through its advertisement pages. This is the theme which we wish to elaborate in the present instance. Great care is exercised in the acceptance of advertisements. The appearance of an advertisement in these pages is an indication that the claims made by the advertiser are believed to be genuine, that the ingredients of the substance are as stated, that the ingredients have been compounded in a cleanly and proper fashion and that the substance may be used with confidence by the medical profession. When a proprietary drug or food preparation is offered for advertisement to this journal, the procedure differs according to whether it has been manufactured in Australia or abroad. If the preparation is manufactured in Australia, the proprietor is asked to sign a form authorizing an inspection and analysis to be made. According to this arrangement the results of inspection and analysis may be published in the journal and the proprietor undertakes not to attack the journal unless the statements in the report are untrue or are inspired by bias. It must be noted that the question of the accepting of any advertisement is not discussed until the inspection and analysis have been carried out. The importance of this is obvious. If the substance has been manufactured outside Australia, it may under certain circumstances be accepted if it has been approved by the Journal Committee of *The British Medical Journal* or by the Council of Pharmacy of the American Medical Association. Sometimes a clinical test is made. Clinical tests are admittedly difficult, but the preparations are placed in the hands of competent observers and every care in controlling the observations is exercised. It must not be supposed that every preparation offered for advertisement is submitted either to analysis or to clinical test. If there is reason to doubt the *bona fides* of the proprietor or if extravagant claims are made for the preparation, the matter is allowed to drop. In matters of general advertising, as opposed to that of drugs or foods, only firms of known worth are

considered. It will thus be evident that there is ample ground for the statement that acceptance of an advertisement by this journal carries a guarantee that the goods are believed to be "true to label."

From the point of view of the reader it has been shown that the journal endeavours to place before him only preparations of known value—this is its function. He is asked to look to the "Advertiser" for information. We have had repeated evidence that this is done, but it must be done by every reader. It has never been a practice in this journal to give what are known as "write-ups" to advertisers in the editorial columns. These editorial comments are often made the condition of the offering of a contract to advertise and they would doubtless be accepted at their true value. Every other advertiser or would-be advertiser claims that his product has a peculiar interest to the medical profession. We claim that the acceptance of a contract for advertisement in these pages is the best "write-up" that we can give.

Current Comment.

BACTERIOPHAGE.

AMONG the many recent advances in medical science in general and bacteriology in particular, the discovery of bacteriophage by Twort stands preeminent. d'Herelle's opinions, arrived at after careful and deliberate investigations, are revolutionary and around them has raged argument upon argument. According to many d'Herelle has been extravagant in his claims for the therapeutic value of bacteriophage, others find the results of their experiments to be in agreement with his. The very nature of bacteriophage is in dispute, though d'Herelle is firmly convinced and brings strong proof to show that it is a living organism parasitic to bacteria; many observers, on the other hand, believe it to be a bacteriolytic enzyme. Furthermore, there is doubt as to its mode of action; d'Herelle believes it acts directly by destroying the bacteria with which it comes in contact; others have suggested that its presence causes a change on the part of the offending organisms to an avirulent phase; others that it acts by assisting the development of the local immunity described by Besredka or by vaccination with its dissolved bacteria; some have even argued that any beneficial effect it may have is due merely to the peptone broth in which it is suspended. Obviously much remains to be learned about bacteriophage and bacteriophagy, though there can be no doubt that d'Herelle has forged for the combat with the bacterial armies a formidable weapon whose limitations have yet to be discovered.

The discovery of an efficient method of treatment for cholera has been the aim of physicians through the centuries. Alleged remedies, scientific and pseudo-scientific, have been numberless; nostrums of many varieties, exorcism, charlatanism and empiricism, all have had their adherents and all have failed. This disease which has hitherto defied all man's efforts, is the one which yields perhaps most readily to attack by bacteriophage.

F. d'Herelle, R. H. Malone and M. N. Lahiri have recently completed a memoir, the result of six months' study of cholera in India.[1] The first part of the memoir is devoted to a study of the vibrios and the bacteriophage, the second part to the pathology of cholera and the phenomenon of recovery and in the third part epidemiology and prophylaxis are discussed. While the whole memoir is of great value and is a very important contribution to medical literature, the most interesting portions are those dealing with treatment and prophylaxis. The authors studied the disease as it occurred epidemically in native Indian villages where no proper nursing facilities were available and where squalor and unhygienic living conditions were the rule. Seventy-four patients were treated with bacteriophage and received no other treatment; one hundred and twenty-four patients were treated either with Hindu medicine or an essential oils mixture. No choice of patient was made, bacteriophage was administered when permission was obtained for its use, whatever the patient's condition. Two cubic centimetres of a suspension of bacteriophage diluted with about ten cubic centimetres of water were given *per os* in each instance; the dose was repeated if the patient vomited within ten minutes; four or five cubic centimetres diluted with one half cupful of water were then left with the family to be administered in small quantities during the following three hours. Sometimes the treatment was repeated next day.

Of those patients receiving ordinary treatment 78 (62·9%) died, against 6 or 8·1% of those treated with bacteriophage. Two of the six deaths were inevitable; one of the two patients was first seen on the third day of the disease and had had anuria from the onset; the other had had cholera superimposed on some other febrile disorder. Subcutaneous injection of bacteriophage was found to be valueless in the treatment of cholera and, though harmless when given to a healthy individual, it may even be dangerous to a person already suffering from cholera intoxication. The authors believe the danger to lie in the fact that certain products of lysed vibrios remaining in the suspension after filtration, have a toxicity for people affected with

[1] "Indian Medical Research Memoirs." Memoir Number 14, February, 1930.

cholera when administration by the parenteral route is adopted.

d'Herelle has stated that cholera epidemics are terminated naturally by the dissemination of bacteriophage from convalescents through the same medium as that taken by the specific vibrios—most frequently drinking water. The validity of this hypothesis is given support by the early termination of epidemics usually following the institution of treatment with bacteriophage. This specific treatment is in itself a prophylactic measure of the first importance. A further method of collective prophylaxis consists in adding bacteriophage to the common water supply. The authors offer the ingenious suggestion, for overcoming any Indian religious objections which might exist, of using the water of the River Ganges in the preparation of the bacteriophage suspension. Most Indians would welcome the addition of a cupful of water from the holy river to their drinking supply and perhaps would ascribe to it a beneficence belonging elsewhere. One experiment in individual prophylaxis was made at a banquet with a satisfactory result; a dose of two cubic centimetres of bacteriophage suspension was used.

Among the mass of literature dealing with therapy by the administration of bacteriophage in acute intestinal diseases may be mentioned a report by B. K. P. Choudhury and J. Morison.[1] During an epidemic of bacillary dysentery they treated under field conditions eighty patients, eighteen of whom were said to have a severe infection; three deaths occurred. Morison and Martin in a communication to the seventh congress of the Far Eastern Association of Tropical Medicine in 1927, reported good results from the administration of bacteriophage in the treatment of bacillary dysentery, but at the same congress Kelsall declared that it is valueless. More recently Rice[2] states that he has treated three hundred patients suffering from suppurative conditions by the local application of bacteriophage filtrates specific for *Bacillus coli* and various strains of *Staphylococcus aureus* and *albus*. He obtained excellent results in 90% of his cases, but is not prepared to express an opinion as to the manner in which the bacteriophage acted.

Burnet, writing in this journal in March, 1929, expressed the opinion that in those diseases which are mainly septicæmic, for example, plague and enteric fever, bacteriophage plays little part and can be of therapeutic value only indirectly through its content of associated bacterial antigens. He regards, however, the therapeutic use of bacteriophage as a rational procedure in infections such as dysentery *et cetera* which are largely confined to the intestinal tract, though he admits there is no unanimity of opinion as to its value.

At the third session of the Australasian Medical Congress (British Medical Association), held in Sydney in August, 1929, bacteriophage was not discussed. Surely this important subject deserves more consideration than has hitherto been given it in Australia; certainly there is wide scope for investigation.

In the year 1928 seven hundred and seventy-two children (32·5 per 100,000 of population) under the age of two years died of infantile diarrhœa in New South Wales, 428 in Victoria and 1,616 in the whole Commonwealth. Elsewhere in this issue there appears a report on the gastro-enteritis epidemic at the Royal Alexandra Hospital for Children, Sydney, during the summer of 1929-1930. There was a mortality rate of 21%, though no breast-fed infant and only 2% of those over the age of twelve months died. It is a reasonable assumption that in a hospital less fortunately provided and less highly specialized, the death rate would be higher. Here appears to be a field for exhaustive experiment with bacteriophage.

d'Herelle's views may be wrong regarding the part played by bacteriophage in enteric fever, but the possibility of its value as a prophylactic should not be overlooked.

It is perhaps unfortunate that d'Herelle is apt to appear somewhat dogmatic in a matter which the medical world generally still regards as undecided, but he provides wise arguments for his dogma and shows many convincing proofs. The use of bacteriophage in the treatment of disease may be widely extended, possibly its value will be found to be restricted to the treatment of some few more or less localized infections, but the bacteriophage is a worthy addition to the clinician's armamentarium and as such demands an early definition of its uses and limitations.

[1] *Indian Medical Gazette*, February, 1929.
[2] *American Journal of the Medical Sciences*, March, 1930.

OTITIS MEDIA AND MASTOIDITIS IN INFANTS.

IT is known that gastro-enteritis is often due to an infection in some other part of the body; in infants this infection is not infrequently situated in the middle ear. This question has been recently discussed by F. M. Holsclaw, C. A. Boehm and J. M. Bierman.[1] In a number of children who died with symptoms of gastro-enteritis, a septicæmia was present and further search revealed pathological changes in the middle ear. These authors then studied twenty-six children with mastoiditis. All the children were foundlings, several were premature and all were artificially fed; the oldest was three months of age. In sixteen instances there was a definite history of an upper respiratory infection. Eight died without operation; eight of the remaining sixteen were operated on and eight recovered. The significance of these observations is obvious. The ear should be examined with care whenever gastro-enteritis in infants does not immediately respond to dietetic measures. Paracentesis of the tympanic membrane is a simple and often effective measure.

[1] *American Journal of Diseases of Children*, April, 1930.

Abstracts from Current Medical Literature.

MEDICINE.

Carbonic Acid.

H. W. DAVIES (*Edinburgh Medical Journal*, July, 1929) discusses the therapeutic uses of carbonic acid. Carbonic acid largely regulates respiration, controls blood circulation and the acid base balance or hydrogen ion concentration of the blood and tissues; 40% to 50% of the carbon dioxide in the inspired air acts as an irritant and causes choking from laryngeal spasm, 15% to 20% has a narcotic action and 4% to 7% is a useful respiratory and circulatory stimulant. Excessive elimination of carbon dioxide causes circulatory failure with peripheral stasis, fall in arterial blood pressure and failure of venous return to the heart. In animals administration of air containing 5% to 6% of carbon dioxide will overcome this effect. Carbon dioxide 5% in inspired air will raise the resting respiratory minute volume to double, treble or even more in different individuals; this is more pronounced in conditions of impaired general circulation, such as mitral stenosis and of non-gaseous acidosis. The respiratory response to carbon dioxide is decreased in non-gaseous alkalosis and chronic pulmonary emphysema. Carbon dioxide has been shown to be of value in many types of respiratory failure, especially when respiration tends to be rapid and shallow, gasping or periodic. In anæsthesia with ether given by the closed method, rebreathing increases the carbon dioxide in the inspired air and stimulates respiration; by means of a special apparatus the carbon dioxide tension may be regulated and the respiratory rate and volume increased at will, so that the depth of anæsthesia may be regulated in this way with a constant percentage of ether. By this means also ether is more rapidly eliminated and causes less toxic effects. This was tested on three groups of patients, thirty in each, and it was found that post-anæsthetic vomiting was much less when carbon dioxide was passed under the open ether mask during induction or throughout the operation at the rate of about two litres per minute. Carbon dioxide also abolished respiratory irregularity and embarrassment in patients in the Trendelenburg position. In carbon monoxide poisoning the administration of oxygen 94% and carbon dioxide 6% (undiluted with ordinary air) has a definite restorative effect. At high altitudes carbon dioxide has been shown to regulate the breathing which becomes irregular owing to oxygen lack and excessive carbon dioxide elimination. An experienced mountaineer by using a "Prana" cylinder containing 0·22 kilogram of liquid carbon dioxide fitted with a fine adjustment needle valve, a flow meter and a tube leading to the mask, taken from a Haldane oxygen administration set, found that deep and regular breathing and calm sleep could be obtained at a height of 14,000 feet. Nine other people under the same circumstances slept fitfully or not at all. The mask was put on and just enough carbon dioxide was run in to give deep, regular breathing. In shock and collapse carbon dioxide may act as a restorative; a case of post-operative collapse is mentioned in which carbon dioxide (5% in air) with addition of oxygen (two litres per minute) was administered with a "Carbetha" apparatus; this moribund patient recovered after two and a quarter hours. In alkalosis due to heat stroke hyperpnœa may occur and possibly tetany; carbon dioxide would be useful in this condition. For continued administration a cylinder, a fine adjustment regulating valve, a flow meter and a suitable mask are necessary.

Epilepsy.

W. A. SMITH (*The Annals of Clinical Medicine*, June, 1929) discusses the ketogenic diet in the treatment of epilepsy. Periodic attacks of pallor, thirst, asphyxia, trembling, staggering, screaming and hot flushes are said to be preepileptic phenomena and may lead to early treatment for epilepsy. Convulsions may be due to a great variety of causes, including organic disease of the brain, circulatory disorders, exogenous and endogenous toxins, psychic conflicts and possibly reflex disorders. It is probable that the latter cause convulsions only when organic disease of the brain exists in some form. Lennox and Cobb believe that there are three factors possible in every instance: pathological changes in the nervous system, functional instability of the nerve cells (hereditary, psychic or physico-chemical) or extracerebral disorders, including disturbances of the gastro-intestinal tract. To ascertain the cause a careful history and examination are necessary, the head should be examined by X rays and the cerebro-spinal fluid should be examined especially as to pressure; a ventriculogram or an encephalogram may be helpful. The blood, urine and stools should be examined and a Wassermann test made. Frequently all examinations are fruitless. In any case symptomatic treatment should be carried out in an attempt to prevent seizures. General hygiene and diet should be regulated. Bromides and chlorides may be used, an endeavour being made to maintain a bromide-chloride ratio by examining the blood chloride and bromide content. "Luminal" and potassium boricotartrate are of less value. Starvation has been employed and has had temporary good effect, owing perhaps to the occurrence of ketosis. A ketogenic diet with low carbohydrate and high fat content has been successful in some instances, especially in children. The ketone bodies in the blood, urine and alveolar air increase, blood uric acid increases and fasting blood sugar is low. Carbon dioxide, as in rebreathing, stops epileptic attacks as well as muscular cramps and hiccup. With the ketogenic diet two-thirds to one gramme of protein per kilogram of body weight is advised and green vegetables, cream and eggs should be given. The object is to produce ketosis. The diet should be maintained for weeks or months.

Functional Disorders.

J. H. MUSSER (*California and Western Medicine*, July, 1929) lays stress on the importance of the treatment of functional disorders in general practice. He divides the patients suffering from functional disorders into two principal groups, those who are constitutionally sound and those who are constitutionally below normal. A third group may also be considered, namely, the patients suffering from some physical disease who are also afflicted with complaints more or less closely associated with the primary disorder. With regard to the functional disorders in the constitutionally sound, the author states that these manifest themselves most frequently as digestive disturbances. Functional gastric disorders are usually dependent upon a disturbance of the motility of the organ and are generally due to errors in eating, such as unwise selection of the diet and bolting of the food. These patients readily respond to treatment, the most important feature of which is insistence upon return to a physiological mode of life. The functional disorders of the intestine usually manifest themselves either by constipation or diarrhœa and the motor function is most frequently disturbed. The author emphasizes the fact that a daily evacuation of the bowels is not a *sine qua non* to good health. Disorders of the nervous mechanism of the heart, functional in nature, are frequent. Extra systoles which at times cause disagreeable symptoms, are frequently dependent upon faulty nervous control. Functional disorders of other viscera are relatively rare. With regard to the functional disorders which occur in those who are constitutionally below normal, the author states that, as a result of investigations during the Great War, attention has been drawn to the enormous numbers of the population which are psychically below standard. The people of this group are born, not made, neurasthenics. The lack of emotional control is inherent in them, but numerous extraneous factors, such as grief, worry and sexual repression are responsible for manifestations of functional disorders. The sexual factor stands first in the opinion of the neuro-psychiatrist, but not of the physician who regards environmental influences as playing the more important part. Such influences affect but little the psychically normal. Although the manifestations of functional nervous disorder in this group are very varied, the gastro-intestinal and cardiac syndromes predominate as in the first group. The series of subjective and often objective phenomena of which these patients complain, is much more exaggerated, much more

intense and much more likely to occur on slight stimulation than in the normal individual. The glands of internal secretion may be affected by functional disorders. Other systems may also be involved without suggesting organic disease. The treatment of the milder forms of psychogenic disorders is satisfactory. Attention to general hygiene and a sufficiency of mental and physical rest are the most important indications. The author concludes by entering a plea that these individuals should be considered to be as ill as those who have true organic disease.

Hereditary Yaws.

IN suggesting that yaws may be a hereditary disease, RULX LEON (*American Journal of Tropical Medicine*, November, 1929) points out that most authorities do not subscribe to such a view. The similarity between yaws and syphilis is so striking that many believe the two diseases to be identical, but they are at a loss to explain why one should be hereditary and the other not. The author investigated a series of 225 deliveries at the Haitian General Hospital. A careful study of the history of the mother and examination of both mother and infant were made with a view to ascertaining whether or not syphilis or yaws was present. Fifty mothers presenting no history or evidence of either disease were examined by the Kahn test and no reaction was given by forty-nine. One hundred and twenty-four mothers were considered syphilitic and of these 67% reacted to the Kahn test, while 60% of their babies also reacted. Hypertrophy of the placenta was noted in 58% of these cases. In seventeen instances the syphilitic mother gave birth to a dead child. One abortion was attributed to syphilis and one occurred in a syphilitic woman during a malarial paroxysm. Forty women were believed to be infected with yaws. In 97% of these and in 50% of their babies the result of the Kahn test was positive. Hypertrophy of the placenta was observed in 63%. Abortion preceded by no injury or albuminuria occurred in two women infected with yaws. Spirochætes were not found in the liver of any of the seventeen infants still-born of syphilitic mothers. Interstitial keratitis was observed twice among children of syphilitic mothers, never among the others. Two children of syphilitic mothers died of umbilical and peritoneal hæmorrhage and one born of a woman suffering from yaws died of umbilical hæmorrhage on the fourth day. The author concludes that one may expect similar results in the investigation obstetrically of syphilis and yaws, though fœtal mortality appears to be about five times greater in syphilis than in yaws.

"Sanocrysin" in the Treatment of Pulmonary Tuberculosis.

J. GRAVESEN (*Tubercle*, February, 1930) discusses the results obtained during five years by treating 276 tuberculous patients with "Sanocrysin" at the Vejlefjord Sanatorium. After admitting the diversity of opinion on the value of gold salts, he points out that Möllgaard's original experiments were performed on recently infected animals. To give "Sanocrysin" an honest clinical trial, therefore, patients were chosen in whom the tuberculous process was essentially the same as in recently infected animals, that is to say, they presented fresh spreading disease, with exudative infiltration, tertiary changes, such as cavity formation and fibrosis, not yet having come into existence. Only 26 patients fulfilled the required conditions, and their treatment with "Sanocrysin" was regarded as a conclusive trial for this drug. They all responded very well to "Sanocrysin," with rapid decrease of clinical signs and in all instances a complete disappearance of any X ray indication of active fresh disease. Tubercle bacilli disappeared from the sputum in all eighteen patients in whose sputum the organism was found before treatment. None of these patients has relapsed nor have the bacilli reappeared in the sputum of any of them. The author considers this as proof that the clinical effect of "Sanocrysin" corresponds to that of Möllgaard's experimental work. In regard to the other patients, "Sanocrysin" was found to be of diminishing value in proportion as the disease tended to the productive type, with fibrosis and cavitation. In chronic fibro-cavernous types no effect was obtained from this treatment. In the large majority of patients, however, when fresh spreading disease was grafted on to a chronic process, a combined treatment was employed, of "Sanocrysin" with collapse therapy, "Sanocrysin" acting on the fresh disease and the older fibro-cavernous changes being healed by collapse. In the author's hands this combined method has been effective in the treatment of patients for whom nothing could be done hitherto. Of the first group of 26 patients, out of 18 discharged more than one year, 17 were at work. Of 190 patients treated by combined methods, 50% were able to work after a minimum of two years' observation.

Joint Lesions at the Menopause.

H. J. LAUBER AND C. RAMON (*Münchener Medizinische Wochenschrift*, January 17, 1930) state that the cessation of ovarian function at the menopause is frequently associated with the onset of joint lesions. The same is seen when the ovaries have been removed by operation. The common site is in the joints of the fingers followed by affections of the lower extremities. Besides the common disturbances at the menopause the patients complain of severe joint pain, especially in the little finger. This spreads to the carpo-metacarpal joint and in many cases the knees are implicated as well. The joint is swollen and movements both active and passive are restricted. On palpation the joint capsule appears to be thickened. The symptoms of an acute infection are absent nor does radiological examination assist. When the condition becomes more chronic X rays may reveal evidence of *arthritis deformans*. The authors consider that the lesion is caused by spasm of the blood vessels probably associated with nutritional disturbances. Lesions are seen especially in those whose hands are frequently in cold water. The use of ovarian hormones associated with potassium iodide and hot applications have given good results and the details of six cases are given. Slight recurrences occurred in several, but were easily controlled. Three patients with definite chronic arthritic changes were treated, but the results were not nearly so good.

G. RIEBOLD (*Münchener Medizinische Wochenschrift*, January 17, 1930) reviews the current opinions regarding endocrine influences on joint lesions. He considers that these belong to two main groups. The main one comprises lesions of the larger joints, especially the knee, and are due to diminution in the activity of the ovaries as seen at the menopause. They are frequently accompanied by definite signs of thyreoid deficiency and can be cured by a course of thyreoid therapy. A smaller group occurs in young girls about puberty when the ovarian function is commencing to be regular. Lesions occur especially in the smaller joints of the fingers and slowly spread to other joints. Menstrual irregularity is generally noted and he considers this group to be an example of ovarian dysfunction or hyperfunction more than hypofunction. Treatment with ovarian extracts is not always successful.

Diuretic Hormone.

J. OLIVET (*Münchener Medizinische Wochenschrift*, January 10, 1930) discusses the theories advanced regarding polyuria following stimulation of the brain. He observed that after puncture of the vermiform process of the cerebellum or of the side wall of the fourth ventricle he was able to isolate a hormonal substance from the serum of the blood. When injected into other animals it produced polyuria. The centre for such diuretic action is situated in the mid-brain and especially in the floor of the fourth ventricle. His investigations as to the manner in which the kidneys were stimulated to secrete by this hormone were inconclusive. Further research is required to prove whether the hormone stimulates some renal or extrarenal source or a mixture of both.

Migraine.

E. ROMBERG (*Münchener Medizinische Wochenschrift*, January 3, 1930) after describing the typical symptoms of migraine states that atypical attacks are common. Gastric symptoms, vomiting and loss of appetite, are very common. Spastic constipation is frequent and the pain may resemble renal colic in its intensity. In mild migraine he gives a mixture of phenazonum 0·25 gramme

and caffeine 0·15 gramme, substituting theo-bromine 0·3 gramme when hyperacidity of the stomach prevents the use of caffeine. If the attacks occur at the time of menstruation, the mixture is started a few days previously. In severe cases "Luminal" 0·05 to 0·1 gramme three to six times a day is preferable. With refractory migraine quinine hydrochloride 0·05 to 0·1 gramme three to six times a day is substituted. Patients with increased tension do best with a mixture of "Luminal" 0·015 to 0·1 gramme and "Diuretin" 0·25 to 0·5 gramme three times a day. Attention to the diet and to any constipation is most important. Alcohol should be forbidden. Tobacco is forbidden only when hypertension is present. Treatment should be continued for at least six to eight weeks after the last attack. Change of abode to altitudes above 1,500 metres is beneficial, as sea climates provoke attacks in most subjects.

Hyperthyreoidism.

A. KRECKE (*Münchener Medizinische Wochenschrift*, February 14, 1930) divides patients with hyperthyreoidism into three groups. Those in group I have cardiac palpitations at rest as well as during exercise, no increase in pulse rate, slight nervous symptoms, no exophthalmos and a metabolic rate under 130. Those in group II have a pulsating tumour, more definite palpitations, tachycardia with a pulse rate up to 120, moderate nervous symptoms and exophthalmos with a basal metabolic rate of 130 to 150. Those in group III have more pronounced symptoms, especially exophthalmos (though this may be absent in some instances), nervous symptoms, excessive loss of weight and a basal metabolic rate of over 150. X ray treatment should be given only to patients in groups I and II and then for not too prolonged a period. The contraindications to operation are definite cardiac insufficiency, a pulse rate of over 130, emaciation and a basal metabolic rate of over 180. Careful preoperative treatment, especially with iodine, is essential in all cases. "Avertin" should be used as the anæsthetic and bilateral resection is the operation of choice, except in very severe cases when only one half of the gland should be removed at a time.

Medicinal Treatment in Cholera.

J. WALKER TOMB (*Indian Medical Gazette*, May, 1929) comments on the value of medicinal treatment in cholera. He bases his statements on the study of the disease in 2,826 treated and 398 untreated patients in the Asansal mining settlement over a period of seven years. Diagnosis was based on the presence of the four clinical symptoms, diarrhœa, vomiting, cramps and suppression of urine. Of 1,853 patients treated with ordinary carminative cholera mixtures, 981 or 52·9% died. Two hundred and seventy-six were treated with injections of saline solution with a death rate of 47·1%. Homœopathic treatment was administered to 369 patients of whom 47% died. The common homœopathic remedy for cholera is spirits of camphor which is a valuable antispasmodic and carminative. The treatment of 328 patients with essential oils mixture resulted in a mortality of 26·5%. Of 398 untreated patients 362 (91·0%) died. The treatment was carried out in the field in all instances. In private practice the results with medicinal treatment should be still more satisfactory. The note is published in the hope that others treating large numbers of natives will be induced to keep records so that the value of various remedies may be accurately estimated and that the teaching that medicinal treatment in cholera is useless or harmful may be disposed of effectively.

Glandular Fever.

H. LEHNDORF (*Wiener Medizinische Wochenschrift*, February 15, 1930) describes the cardinal symptoms of idiopathic glandular fever—universal swelling of the lymph glands often more marked in one group of glands, fever with its general symptoms, blood changes. The swelling of individual groups of glands may simulate other conditions, for example, in the thorax, whooping cough; in the throat, diphtheria, especially if ulceration occurs; in the abdomen, colic or appendicitis. The attack is of a severe septic type with enlargement of the spleen, glandular swelling and a blood picture of 60% to 80% pathological lymphocytes. This points to a diagnosis of acute lymphatic leuchæmia. Against this is the absence of anæmia and purpuric spots in the skin and mucous membranes while the number of eosinophile cells is unaltered. Immature forms of lymphocytes predominate and the protoplasm is basophilic in character. The prognosis is good except in patients with marked anginal symptoms. Quinine is the only drug with any effect on the course of the disease. It occurs not only in families, but also in epidemics in schools and barracks. The average incubation period is seven to eight days. Blood cultures are sterile. The organism involved is unknown, though it probably enters by the nasal mucosa and has a special affinity for lymphatic tissue.

Treatment of Cholera with Bacteriophage.

J. MORISON, B. K. PAL CHOUDHURY AND M. D. H. RAHMAN (*Indian Medical Gazette*, March, 1930) describe an outbreak of cholera in a Khasi village and its treatment with bacteriophage. Never in the memory of the inhabitants had cholera previously occurred in the village of Jakrem, but in October, 1929, eleven men of the village took a two days' journey in search of work to Maodon where cholera was raging. After staying one night they returned, to be met by the village elders who refused them admission to the village until an egg-breaking ceremony had been held to determine whether or not the cholera demon accompanied them. Within two days it was decided that the cholera demon was not present and the travellers were allowed to proceed. Before doing so they ate food which had been prepared in Maodon, in the house of a friend who that night became ill and next day died. It was held that this man could not have died of cholera, so his body was ceremonially cremated and a big feast was held. This was followed by an epidemic of cholera with many deaths. As all the food used at the feast had been cooked, infection must have been transmitted during the distribution of the food. On the eighth day cholera bacteriophage was made available and a sudden alteration in the character of the epidemic took place. On the twelfth day inoculation was commenced and the epidemic ended on the eighteenth day. One hundred and forty-three people became infected during the epidemic, with seventy deaths. Of sixty-five who received bacteriophage, seven or 10·8% died, while of seventy-eight who received no bacteriophage, sixty-three or 80·8% died. Seventy-two patients fell ill after bacteriophage had become available; bacteriophage was administered to fifty-nine of these with seven deaths; of the remaining thirteen who did not receive bacteriophage, twelve died. d'Herelle believes that cholera epidemics are brought to an end by the development of bacteriophage in those who recover and its distribution by the agencies that distribute the infection. In the Jakrem epidemic the administration of bacteriophage may have precipitated a condition which normally occurs more slowly. The authors draw attention to the fact that conditions in this epidemic were severe and no nursing was possible.

Spirochætes in Sputum.

P. V. BENJAMIN (*Indian Medical Gazette*, March, 1930) discusses the significance of spirochætes in sputum, particularly in regard to their relationship with pulmonary tuberculosis. A good deal has recently been written about bronchial and broncho-pulmonary spirochætosis and some confusion has arisen regarding the morphology of the spirochæte said to be concerned. Some observers are of the opinion that so-called *Spirochæta bronchialis* is distinct from the spirochætes normally found in the mouth; others are opposed to this view. In the Union Mission Tuberculosis Sanatorium at Arogyavaram, southern India, the author examined the gums of one hundred patients, finding ninety-three of them infected with spirochætes; 37% of the patients also harboured spirochætes in their tonsils. This being so, it is important that mouth and throat should be rinsed out before an examination of sputum for the presence of spirochætes is made. The sputum should also be washed five or six times with sterile normal saline solution and a piece from the centre of the specimen selected for examination. Spirochætes were found in the sputum of 196 of 331 patients whose mouths and sputum had not been

washed, while, on the other hand, they could not be found in more than three washed specimens from 170 patients whose mouths had been rinsed. One hundred and sixty-two of this group of one hundred and seventy patients suffered from tuberculosis. The examination of the sputum of only one of these revealed the presence of spirochætes. This patient suffered from cavitation of the lungs, but none of 121 others with cavitation had spirochætes in the sputum. Spirochætes were not found in the sputum of fourteen patients suffering from bronchitis as a complication of tuberculosis nor of six patients suffering from unresolved pneumonia or early bronchiectasis. Spirochætes were repeatedly found in the sputum of two patients suffering from abscess of the lung. The authors conclude that the occurrence of spirochætes in the sputum is frequent only on account of the presence of spirochætes in the mouth, that it is not likely that spirochætal infection is concerned in hæmoptysis or in secondary infection of cavities in pulmonary tuberculosis, that it does not appear to have any significance in bronchitis and that the findings of others, that lung abscess is caused by spirochætes is probably correct.

Congenital Syphilis.

E. MARTIN AND D. VIERKOTTEN (*Monatsschrift für Geburtshülfe und Gynäkologie*, February, 1930) discuss the treatment of congenital syphilis. They consider that the Wassermann test should be made in every pregnancy. Children born to mothers with a positive reaction should be regarded as potentially infected and therefore be subjected to treatment. The same applies to patients with a history of treatment and a failure to react at the time of delivery. Failure to react in infants of the above groups is not conclusive of freedom of infection and the test should be repeated after six weeks. The authors prefer tablets of "Spirocid" 0·25 gramme to "Salvarsan" or bismuth preparations. In premature infants a quarter of a tablet is given at first and the dose is rapidly increased until one is taken every day. Vomiting is the only indication for stopping the drug. A total course amounts to thirty grammes. The children are kept at the breast during treatment. In his series of 117 children only three premature children died on the first day; the remainder are alive and well.

Diet in the Treatment of Tuberculosis.

H. HARMS AND G. GRÜNEWALD (*Deutsche Medizinische Wochenschrift*, February 14, 1930) have investigated the claim that a salt-free diet exercises a powerful influence in the treatment of pulmonary tuberculosis. They found considerable difficulty in persuading patients to keep to the diet and loss of appetite was common. Therefore a prolonged test was impossible. They conclude that it has little if any influence on the course of the disease. No increase in weight occurred and no improvement in the local condition, the blood sedimentation time, while showing an increase during dieting, fell to normal when the diet was stopped; the chloride content of the blood serum remained unaltered, as did also the urea output in the urine. The authors conclude that such dietetic treatment is not without danger to the patient and in any case does not mark any progress in therapy.

Abscess of the Lung.

CARL J. BUCHER (*American Journal of the Medical Sciences*, March, 1930) discusses the bacteriological examination of pus from abscess of the lung occurring in 118 patients. Material for examination was obtained by the use of the bronchoscope, precautions being taken against the possibility of contamination with organisms from the mouth. Whenever possible, pus was also obtained at open operation; its examination yielded practically, but not absolutely, the same results as did the examination of that obtained from the bronchi. Culture media used were dextrose hormone broth and human blood agar. At first no systematic effort was made to culture anaerobes, but in the later stages of the investigation, a portion of pus was always inoculated into a deep tube of glucose cysteine hydrochloride agar previously heated to expel oxygen. The organism most commonly found was the streptococcus which occurred in 79% of cases. The abscesses from which hæmolytic streptococci were isolated, were usually acute and the patients very ill. Staphylococci, pneumococci, *Bacillus influenzæ*, *Bacillus fusiformis*, spirochætes, various anaerobes and other organisms, some unidentified, were also found. The author is not prepared to name any one organism as the ætiological factor in any instance, as invariably more than one type was found. He is struck by the similarity between the bacteriological flora of pulmonary abscess and that of the mouth and believes that many organisms gained entrance to the abscess cavities from the mouth *viâ* the upper air passages. He suggests that if aspiration of mouth bacteria be not the cause of pulmonary abscess, these bacteria are at any rate a potential source of further infection. This point is important and should not be neglected in any consideration of the ætiology and development of abscess of the lung.

Bovine Type Tubercle Bacillus in Pulmonary Tuberculosis.

W. T. MUNRO (*Edinburgh Medical Journal*, March, 1930) reviews the researches carried out by himself and others at Glenlomond Sanatorium during eight years on the types of tubercle bacilli found in human sputum. Among two hundred and fifty patients from whose sputum tubercle bacilli were grown in culture, no less than ten were found to have coughed up bovine type tubercle bacilli. In nine of these the result was confirmed by A. S. Griffith. He explains the high percentage obtained by them as being due to the fact that every sputum in which organisms were found, whether tubercle bacilli were numerous or scanty, was cultured and a growth obtained. Four of the patients have died, one from a non-tuberculous cause, while of the remaining six four are now free from infection and two are making good progress. It was noted in every case that fibrosis was predominant, only one giving clinical evidence of any cavitation. This leads the author to suggest that the allergic response to the bovine type bacillus is proliferative rather than ulcerative. He regards the allergy occasioned by a previous benign infection as protecting against superinfection by the bovine type, though it breaks down before the recognized greater virulence of the human type of bacillus. He looks upon these ten patients as supplying an argument against aerogenous infection. In none was there any history of contact with infected persons and aerogenous infection from the cow is inconceivable. Though each patient was suffering from pulmonary tuberculosis, it was therefore most unlikely in any that the superinfection was air-borne. Finally, inasmuch as he was unable in any one patient to find a bovine type bacillus in gland and a human type in lung, he regards the evidence in these bovine type infections as conclusive that superinfection must be endogenous.

Kala-Azar.

THE successful infection of hamsters (*Cricetulus griseus*) with kala-azar by the oral route is reported by H. E. Shortt, A. C. Craighead, R. O. A. Smith and C. S. Swaminath (*Indian Journal of Medical Research*, July, 1929). In the first experiment ten hamsters were given by mouth 0·1 to 0·3 cubic centimetre of emulsion in normal saline solution of mixed liver and spleen from a hamster infected with kala-azar. Eight of these animals developed leishmaniasis. In the second experiment six hamsters were fed with *Leishmania donovani* from cultures. Five of the six became infected. Despite the strong circumstantial evidence pointing to the incrimination of *Phlebotomus argentipes* as the vector of Indian kala-azar, these experiments appear to render necessary an examination of the possibilities of oral infection. The authors point out that while all of the many thousands of attempts at the experimental transmission of kala-azar by the bite of *Phlebotomus argentipes* have failed, yet the relatively few attempts at infection by the oral route have been largely successful. Parasites of kala-azar escape in the urine in viable form and probably also in the fæces. The obvious line of experimentation is towards determining the avenues by which *Leishmania donovani* may leave the mammalian host and how far they may remain viable in food materials such as milk *et cetera*.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Austin Hospital, Heidelberg, Victoria, on April 16, 1930. The meeting took the form of a series of clinical demonstrations by the members of the honorary staff.

Arthrodesis for Joint Tuberculosis.

DR. C. J. O. BROWN showed a series of patients illustrating methods of arthrodesis for joint tuberculosis. All the patients were adults and the joints shown included two knees, one hip, three sacro-iliac joints and three spines. Most of the operations had been performed within the previous six months so that end results could not be assessed.

The knees had both been fixed by Hibbs's method of using the patella as a key to hold the femur and tibia in position.

In one instance exploratory arthrotomy had been necessary to make the diagnosis in a case of arthritis that had persisted for eighteen months, and even at operation diagnosis had been uncertain. Tubercle bacilli had been demonstrated in synovial membrane removed for section and later an arthrodesis had been performed. Firm bony ankylosis had resulted seven months after the operation and the patient was walking without support.

The hip joint had been operated on by Hibbs's method of using a portion of the trochanter as a bone graft. The patient was a boy of sixteen years who had been laid up with a tuberculous hip for six years and had a small sinus at the time of operation. After operation he had immediately been placed in a plaster cast previously prepared. Convalescence had been uneventful and the graft was uniting well with the femur and ilium and there was increasing calcification in the diseased area.

The three sacro-iliac joints had been fixed by Verral's method and Albee's operation had been performed on two spines. The third spine had had an Albee's bone graft inserted for cervical caries ten years before and a lasting cure had resulted. Recently this patient had developed a tuberculous hip.

Attention was drawn to the frequency of multiple lesions in surgical tuberculosis and to the importance of overcoming the general tuberculous infection before operation to relieve a local lesion.

Syphilis.

DR. J. F. CHAMBERS showed two patients exemplifying somewhat similar types of unsuspected syphilis.

The first was a man, aged forty-three, who had been admitted to a metropolitan hospital four months previously following a two years' history of intermittent nausea, anorexia, vomiting, diarrhœa and loss of weight. During the later stages there had been three attacks of hæmatemesis, colicky pains in each loin accompanied by the passage of urinary "gravel" and a sharp pain aggravated by respiration in the right lower thoracic region. On investigation the positive findings had included considerable firm irregular enlargement of liver and spleen, ascites which required tapping at fortnightly intervals, secondary anæmia and X ray evidence of a mass spreading from the hilum into the right lung and of bilateral renal calculi. The test meal, bismuth meal, Fouchet, Van den Bergh and renal function tests had revealed no abnormality. The Wassermann test which subsequently gave a strongly positive reaction, had initially been overlooked and diagnoses at times made of cirrhosis of the liver, pleurisy and carcinoma of the lung. For the past month iodide and mercury had been administered by mouth with general improvement, alleviation of peritoneal tenderness and a checking of the ascitic fluid accumulation.

Dr. Chambers's second patient was a woman, aged fifty-one, who had presented herself to a physician five months previously with the symptoms of diabetes and hyperglycæmia and glycosuria which required a restricted dietary and thirty-five units of "Insulin" every day for adequate control. Two months later a steadily deepening painless jaundice had ensued and the possibility of pancreatic malignant disease accounting for the whole picture had been considered. Later the liver had been found to be large and nodular and this together with the diabetic syndrome and an element of generalized pigmentation had suggested a diagnosis of hæmochromatosis. Again, however, the Wassermann test had yielded a "+++" result and the Casoni test no reaction. Following the administration of a mixture containing biniodide of mercury there had been an increase in appetite and weight, a progressive lessening in the jaundice and a return to a full diet without "Insulin." With this, while the blood sugar remained somewhat raised, there was only transitory glycosuria.

Radiological Apparatus.

DR. H. FLECKER gave a demonstration on the new system of developing X ray films without the use of a dark room. The heating device as well as the thermostatic control was actually built into the tank and was operated by separate switches. The temperature of the solution could be adjusted to operate automatically at the desired heat. The drying compartment was operated by a blower and permitted of the drying of the films in from fifteen to twenty minutes. The whole apparatus provided neatly for the accommodation of the hangers, cassettes and films, was provided with safelights and white viewing arrangements, timer and, in fact, provided for all the essential dark room requirements and could be adjusted to the needs of the busiest X ray practice.

A demonstration was also given of a new dental till and film hanger. This permitted the films to be placed in their respective positions prior to development without the necessity of clipping each individual film, thus obviating the necessity of sorting the films and permitting of viewing them immediately after development, as the films were all in their respective positions.

Tumour of the Tonsil.

Dr. Flecker also showed a male patient who had been sent by the late Dr. R. A. Stirling on March 6, 1923, with a note: "I think a case of sarcoma of the tonsil and glands in the neck of 14 months' duration." At the time the patient had had a large mass filling up the fauces, interfering with deglutition and speech, as well as large glands upon each side of the neck. Unfortunately a microscopical section had not been made.

On March 12, 1923, one single dose of X ray therapy had been given and had not been repeated since.

On March 26, 1923, a fortnight after treatment, the patient had reported for inspection when the great bulk of the tumour masses had disappeared. It was stated that diminution in size had been noted two days after treatment. The normal voice had been completely restored.

Although off duty since October, 1922, five months before treatment, the patient had resumed his occupation as an electrician in May, 1923, namely, two months after the exposure, and had been regularly employed ever since. All that remained to indicate the original condition was a small foramen in the anterior pillar of the fauces, probably caused by the pressure of the original growth.

Pulmonary Fibrosis.

DR. HENRY SHANNON showed two children suffering from basal pulmonary fibrosis; they illustrated the two opposite extremes of lung damage to which this condition may give rise.

The first patient was a girl, aged thirteen years, who had the following history. She had first been seen in March, 1929, complaining of cough, profuse expectoration and nasal discharge of many years' standing. She had been losing weight and was very easily tired. She was said to have had pneumonia three times and whooping cough. Examination had revealed rhonchi and sibili at both bases, more especially at the right base. No tubercle bacilli had been discovered in the sputum. X ray examination had revealed increase of hilar shadows and increased bronchial shadows at the right base.

After "Lipiodol" was instilled into the right lung X rays had revealed nothing abnormal in the bronchial tree. Nose and throat examination had revealed a big piece of adenoid tissue and both antra had been found loaded with pus.

After the postnasal space had been cleared and radical antrum operations had been performed, the patient had begun to improve greatly. The cough and sputum had diminished and she had put on more than 3·15 kilograms (half a stone) in weight in a few weeks.

The second patient was a boy, aged thirteen years, who had first been seen in February, 1930, complaining of cough and phlegm which he had had all his life. He had had no other illness, but had been attending various institutions on and off with his present complaint for years. Last year he had been sent to Heatherton Sanitorium for six months.

He had all the signs of a diffuse fibrosis in his right lung; he was weedy, undersized and incapable of exerting himself; his sputum had been examined unsuccessfully for tubercle bacilli.

Ordinary X ray examination revealed much increase in the bronchial shadows, but no characteristic pulmonary lesion was present. "Lipiodol" revealed a fine sacular right basal bronchiectasis. When first seen the patient had had an enormous pair of very septic tonsils which had just been removed and both antra were intensely opaque to X rays.

Dr. Shannon said that these two patients illustrated several interesting points in the evolution of bronchiectasis. The almost constant association of severe upper respiratory infection with basal fibrosis in children seemed to indicate the presence of a causal relation and when the rapid improvement in cough and sputum which followed treatment of the nose and throat was noted, the upper infection must be claimed as the primary factor.

This was well shown by the result of treatment of the first patient. When, however, the peribronchial infiltration and fibrosis proceeded further, namely, to actual sacculation, treatment to the nose and throat and climatic treatment did not suffice. Collapse therapy by air, oil or operation became necessary if the patient was to be saved from complete invalidity. It was interesting to compare the skiagrams of the two patients as shown by ordinary and by "Lipiodol" methods. Although the conditions were so remote from each other in the amount of lung damage, the ordinary X ray films revealed very little difference and as a guide to further treatment the use of "Lipiodol" was essential.

MEDICO-POLITICAL.

THE Secretary of the Victorian Branch of the British Medical Association has forwarded for publication the financial statements of the Victorian Branch of the British Medical Association and of the Medical Society of Victoria for the period January 9, 1929, to January 9, 1930. The statements are published on pages 760 and 761.

The College of Surgeons of Australasia.

ANNUAL MEETING.

THE ANNUAL MEETING OF THE COLLEGE OF SURGEONS OF AUSTRALASIA was held at Melbourne on March 25, 1930, SIR HENRY NEWLAND, the President, in the chair. One hundred and seventy Fellows attended.

President's Address.

SIR HENRY NEWLAND delivered his address as President. In the course of his remarks he said that one of the objects of the College was to bring together the surgeons of Australia and New Zealand periodically for scientific discussion and practical demonstration of surgical subjects and thus to cultivate and maintain the highest principles of surgical practice. Since its foundation, in addition to the work carried out at the annual meetings, numerous operative and clinical demonstrations and lectures by distinguished visitors and by Fellows of the College had been given in the various States of the Commonwealth and in the Dominion of New Zealand. These meetings had been well attended by Fellows, many of whom had travelled long distances for this purpose. An illustration of this fact was given by the presence of Fellows from Western Australia as well as the other States of the Commonwealth and from the Dominion of New Zealand. Sir Henry Newland referred to the scientific work done at meetings of the College and said that this work had been recorded in *The Journal of the College of Surgeons of Australasia.* The high standard of the first two volumes of this publication had evoked commendation from the surgeons of many countries.

Another duty of the College was to assist candidates for the fellowship to obtain that adequate and special training in surgery which was a necessary qualification for it. After 1931 the possession of a senior surgical qualification would be obligatory for candidates for the Fellowship of the College of Surgeons of Australasia. In view of this regulation the Council had taken action to bring about some degree of uniformity in the senior surgical degrees of the Australian universities. In March, 1929, a conference of the Deans of the Faculties of Medicine of the Universities of Sydney, Melbourne and Adelaide and the late President of the College had been held in Sydney and had presented a report containing a scheme of uniform regulations for these degrees. He was glad to be able to inform the Fellows that this report had received the general approval of the three Faculties of Medicine concerned and that a conference of Fellows of the College holding office on the various faculties had been convened by the Dean of the Faculty of Medicine of the University of Melbourne. At this conference it was hoped that agreement would be reached on some minor points of difference which still existed, and that it would soon be possible to give the necessary notice of a change in the regulations for these degrees.

The Council of the College realized that, though many Australasian graduates went to London to sit for the fellowship examination of the Royal College of surgeons of England, there were many, equally competent, who could not afford to risk the time and expense involved in sitting for both primary and final examinations in England. It was also the desire of the College of Surgeons of Australasia to maintain a close association with the Royal College of Surgeons. Negotiations between the Councils of the two Colleges had been in progress during the last two years and the negotiations were almost completed. In all human probability the primary fellowship examination of the Royal College of Surgeons of England would be held in Australia in August or September, 1931, provided that not less than twenty-five eligible candidates offered themselves for the examination. The considerable deficit which it was expected would result from holding this examination in Australia would be borne equally by the two Colleges. The proposed scheme would be provisional and experimental only and, if this trial primary fellowship examination in Australia proved unsatisfactory for any reason, either College was free to refuse to repeat the experiment. The Council believed that this scheme, if successful, would not only forge an additional link in the chain binding Australasia to England, but would bring more Australasian graduates intimately under the influence of the traditions of British surgery.

Fellowship of the College of Surgeons of Australasia would not only imply that the successful candidate possessed a senior surgical qualification, but also that ability in surgical technique and diagnosis which could be acquired only by undergoing the stern discipline of a period of clinical assistantship. Sir Henry Newland referred to the policy of the College in respect to future admission (*vide infra*).

Another object of the Constitution of the College was the promotion of research in surgery. During the past year the Council has made some monetary grants to aid approved research workers and proposed to continue and extend this practice. It was probable that in the near future it would receive endowments to assist it in this work.

VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION.

STATEMENT OF RECEIPTS AND PAYMENTS FROM JANUARY 9, 1929, TO JANUARY 9, 1930.

RECEIPTS.	£ s. d.	£ s. d.
January 9, 1929—		
To Balance, National Bank of Australasia, Limited ..	504 18 4	
„ Cash in Hand	12 0 0	
		516 18 4
January 9, 1930—		
„ Subscriptions—		
Metropolitan members ..	3,443 17 0	
Country members	1,713 15 8	
Junior members	374 11 0	
Capitation Grant, London ..	0 12 0	
	5,532 15 8	
Less Refund Subscriptions	1 0 0	
		5,531 15 8
„ Clerical work for members	52 16 9	
„ Clerical, Permanent Post-Graduate Committee ..	25 0 0	
		77 16 9
„ Refund Expenses *re* Hall ..		24 10 0
„ Sale, Hospital Report Forms		0 4 0
		£6,151 4 9

PAYMENTS.	£ s. d.	£ s. d.
January 9, 1930—		
By Medical Society of Victoria		2,734 5 6
„ *The British Medical Journal*		1,700 10 0
„ Federal Committee		135 14 0
„ Salaries—		
Secretary	27 0 0	
Assistant Secretary	258 18 4	
Library Assistant	169 10 10	
Junior Clerk	79 2 6	
		534 11 8
„ Rebates to Subdivisions ..		96 10 0
„ Postages, Duty Stamps *et cetera*		92 0 11
„ Printing		114 6 2
„ Stationery		73 12 6
„ Commission on new members		7 15 0
„ Advertising		10 14 0
„ Audit Fee, 1928		5 5 0
„ Telephone		10 14 6
„ Electric Light and Power ..		17 11 3
„ Legal Expenses		4 4 0
„ Repairs *et cetera*		5 14 9
„ Bank Charges *et cetera* ..		19 19 3
„ Insurance		1 1 7
„ Clerical Assistance	0 11 0	
„ Travelling Expenses	0 4 0	
„ Expenses, Hamilton Meeting	3 13 0	
„ Expenses, Sir Ewen Maclean's Visit	5 17 5	
„ Expenses, Yallourn Meeting	3 0 0	
„ Expenses, Bendigo Meeting ..	2 6 0	
„ Lanternist *et cetera*, Branch Meetings	17 5 6	
„ Hire of Chairs	2 3 0	
„ Afternoon Teas *et cetera* ..	1 2 0	
„ Acts, Regulations *et cetera* ..	2 3 6	
„ Buglers, Memorial Service ..	2 0 0	
„ Binding Minutes	1 15 0	
„ Framing Photographs	8 15 6	
„ Photographs	1 14 6	
„ Wreaths	5 5 0	
„ Sundries	4 8 5	
		62 3 10
„ Balance, National Bank of Australasia, Limited ..	512 10 10	
„ Cash in Hand	12 0 0	
		524 10 10
		£6,151 4 9

Compared with the Books and Accounts of the Victorian Branch of the British Medical Association and found to be in accordance therewith.

Melbourne, January 16, 1930.

J. V. M. WOOD & Co.,
Chartered Accountants (Aust.).

In order to promote the practice of surgery under proper conditions by securing the improvement of hospitals and hospital methods, hospital committees had been established in four of the Australian States and it was hoped shortly to establish a hospital committee in the Dominion of New Zealand.

Finally, the College had been mindful of its duty towards the public. All its Fellows had signed a pledge that they would not commit breaches of trust with their patients, such as the secret division of fees. The College possessed disciplinary powers over its Fellows which it would not hesitate to exercise in cases in which a violation of this pledge had been committed. For the guidance of its Fellows a code of rules governing their conduct in respect to fees had been drawn up.

In conclusion Sir Henry Newland said that he believed that it could be justly claimed that in the first three years of its existence much had been done to carry into effect the objects as set out in the Constitution of the College and he felt sure that, if wisely directed, its activities would become an increasing power for good in the life of the Commonwealth and the Dominion.

Election of Members of Council.

The following retiring members of Council were reelected: E. D. Ahern, A. L. Kenny, Sir Henry Newland, R. Hamilton Russell, F. P. Sandes.

Future Admission of Fellows.

The following policy in regard to the future admission of Fellows was adopted.

Applications for Fellowship may be expected from two types of candidates, as follows:

(*a*) Young men who, soon after graduation, wish to undergo that adequate and special training for the practice of surgery, which is insisted upon in the Constitution of the College, and so qualify themselves for Fellowship.

MEDICAL SOCIETY OF VICTORIA.

STATEMENT OF RECEIPTS AND PAYMENTS FROM JANUARY 9, 1929, TO JANUARY 9, 1930.

RECEIPTS.	£ s. d.
January 9, 1929—	
To Balance, National Bank of Australasia, Limited	25 5 1
January 9, 1930—	
„ Subscriptions	2,735 0 6
„ Transfer from Medical Agency on Account of Building Fund	210 17 6
„ Sundries	2 6 5
„ Balance, National Bank of Australasia, Limited	92 16 9
	£3,066 6 3

PAYMENTS.	£ s. d.	£ s. d.
January 9, 1930—		
By THE MEDICAL JOURNAL OF AUSTRALIA		1,633 11 0
„ Interest on Building Fund Debentures		426 8 4
„ Redemption of Building Fund Debentures		100 0 0
„ Salaries—		
Secretary	412 0 0	
Library Clerk	71 0 0	
Caretaker	100 0 0	
Library Assistant	6 10 0	
Bonuses to Staff	22 10 0	
		612 0 0
„ Library, Journals and Binding		29 9 8
„ Furnishings		31 13 0
„ Postages		92 0 10
„ Rates, Taxes and Insurance		42 19 9
„ Light and Power		17 11 3
„ Audit Fee, 1928		5 5 0
„ Bank Charges		0 10 0
„ Telephone		10 14 6
„ Repairs—		
Electrical	5 14 3	
Plumbing	3 2 6	
Furnishings	24 16 6	
Building	25 13 8	
		59 6 11
„ Sundries		4 16 0
		£3,066 6 3

Compared with the Books and Accounts of the Medical Society of Victoria and found to be in accordance therewith.

J. V. M. WOOD & Co.,
Chartered Accountants (Aust.).

C. STANTON CROUCH,
Secretary.

CRAWFORD H. MOLLISON,
Honorary Treasurer.

Melbourne, January 16, 1930.

(*b*) More senior men who, after obtaining a senior degree, have gone without further training into practice and have therein acquired a knowledge of the practice of surgery, which justifies them in applying for Fellowship of the College.

By Regulation 3 (7) a candidate, after February 5, 1932, shall possess a senior surgical qualification.

Group (*a*).—This training must, under the Constitution, extend over a minimum period of five years after graduation and, broadly stated, should consist in:

1. One year's training as a house surgeon and a house physician.

2. One year's training as a senior resident officer at a general hospital or as a resident officer at a special hospital.

3. Obtaining a surgical qualification recognized to be of senior standing by the Council.

4. Surgical experience gained by assisting the surgical members of the honorary staffs of the large public hospitals at operations and in the out-patients' department.

The time spent in work in the anatomy, pathology or physiology departments of a university, in research work and in travel in other countries will be taken into favourable consideration in granting the Fellowship of the College.

Men who have qualified in this manner will, if fulfilling the other requirements, be admitted as Fellows of the College. The College can certify that men trained in this manner, whether they subsequently enter general practice or specialize in some department of surgery, are competent surgeons. It is to be hoped that some men, so trained, will be appointed to country hospitals and thus maintain a supply of fully-trained surgeons in country centres.

The College will do everything possible to place this training at the disposal of graduates. It will endeavour to arrange tutorial classes for candidates for the higher degrees in surgery. It will continue its policy of asking the boards of management of hospitals to make available positions of the clinical assistant type for prospective candidates for the Fellowship. It will admit suitable candidates for the Fellowship as junior members, after they have obtained a senior surgical qualification, but prior to the completion of the five years' period of training.

Group (*b*).—This group comprises those candidates who have been unable to undergo the five years' course of training outlined above, but who possess a senior surgical qualification and can furnish evidence of surgical competence acquired in practice. The surgical practice of candidates in this group must extend over a longer period than in Group (*a*), and the College will make a searching inquiry into the qualifications of these candidates before recommending admission to the Fellowship.

The Council wishes to encourage as many candidates as possible to undergo the course of training outlined for Group (*a*). It hopes that the boards of management of hospitals will give due consideration to the claims of candidates who have undergone this training and have been admitted as Fellows of the College, for positions on the honorary staffs.

Election of Fellows.

It was reported that the following applicants had been admitted by the Council to Fellowship of the College.

England: Thomas Peel Dunhill.

Federal Capital Territory: John Alexander James.

New South Wales: Ashleigh Osborne Davy, Walter Wallace Martin.
Queensland: Alan Edward Lee, Keith Chisholm Ross.
Tasmania: Clifford Craig.
Victoria: Archibald Simpson Anderson, Leonard Hunt Ball, Athol Blaubaum, William George Cuscaden, Francis Julian Bowyer Miller, William Harold James Moore, Zelman Schwartz.

The following applicant was admitted to Junior Membership:

New South Wales: Malcolm Sidney Stewart Earlam.

Rules Governing Fees in Private Practice.

The following rules governing the conduct of Fellows in regard to fees in private practice were adopted.

1. The patient, or the person legally responsible for him, must consent in the choice made of a surgeon to perform the operation. It is to be noted that such a consent would be an essential factor in the successful suit by a surgeon for the recovery of his fee.

2. Having been selected by the patient, or the person legally responsible for him, the surgeon is personally responsible to him for the operation. He is also responsible for, and shall conduct, the post-operative treatment, except by special arrangement with the patient, or the person legally responsible for him.

3. The surgeon must render his account direct to the patient, or to the person legally responsible for him.

4. The surgeon must not accept his fee for an operation from the practitioner in charge of the patient, unless the surgeon forwards a receipt for the fee received direct to the patient, or to the person legally responsible for him.

5. If circumstances compel the surgeon to delegate the post-operative treatment of a patient to another practitioner, the latter must collect the fee for so doing direct from the patient, or from the person legally responsible for him. The surgeon must not pay the practitioner in charge of the patient a fee for conducting the post-operative treatment.

6. Separate accounts for the assistant, anæsthetist, or for other necessary services, for example, the pathologist, must be sent to the patient, or to the person legally responsible for him, or the surgeon must state on his account form the exact amounts due for these services.

7. The assistant's standard fee shall be not more than one-eighth of the operation fee, or, alternatively, not more than five guineas. When, owing to special circumstances, the assistant's fee is larger than this amount, the assistant must render his own account on his own account form.

8. The anæsthetist's standard fee shall be not more than one-eighth of the operation fee, or, alternatively, not more than five guineas. When, owing to special circumstances, the anæsthetist's fee is larger than this amount, the anæsthetist must render his own account on his own account form.

9. It is desirable that the practitioner in charge of the patient should be present at an operation on his patient. Should he have to travel any considerable distance for this purpose, the patient must be informed beforehand of the extra fee involved.

Medical Societies.

THE CLINICAL SOCIETY OF THE HOSPITAL FOR SICK CHILDREN.

A MEETING OF THE CLINICAL SOCIETY OF THE HOSPITAL FOR SICK CHILDREN, Brisbane, was held at the Hospital for Sick Children on November 28, 1929, DR. G. P. DIXON in the chair.

Birth Palsy.

DR. J. A. CAMERON showed a patient with a birth palsy. The mother had given birth to twins on March 26, 1925, at full term. The first had been a footling, much macerated, with a soft head and the bones loose and overlapping. The second fœtus had presented by the breech (this was the present patient), the legs and arms had been extended, delivery of the head had been a little slow, the perineum had been lacerated and had required three sutures. The buttocks had been bruised. There had been one placenta; the part corresponding to the first fœtus had been thin and whiter than the other part. There had been two bags of membranes. In May, 1926, at the age of thirteen months the child had not been able to sit up without support, but had lain on his back all the time. He had had six teeth, had been very constipated, but had not looked dull. In October, 1926, the child had still been unable to sit up. He had been able to lift his arms fairly well, though the right was a bit stiff. He had been unable to talk and had crossed his legs a good deal. Two and a half years before the meeting he had had measles with severe convulsions at the outset. In the last twelve months he had had frequent colicky pains and had been constipated; the constipation had been relieved by cascara and belladonna and "Luminal" had been given. At the time of demonstration the child talked well, but slowly, his memory was good, he could spell words of one syllable and could count up to sixteen, he still had to be fed, he could sit up and shuffled about on his buttocks.

Dr. Cameron pointed out that several conditions had to be considered in attempting to form a diagnosis. It had to be determined whether the condition was of intrauterine origin, whether it was the result of birth injury or whether it was syphilitic. The condition of the child was one of weakness, spastic rigidity and adduct spasm. The plantar reflexes were extensor in type and suggested the presence of secondary degenerative changes in the spinal cord. There was no disturbance of sensation and control of the bladder and rectum was normal. The microcephaly which was often associated with this condition, suggested a cerebral origin. It was possible that the arrest of development had occurred in intrauterine life. In these children some degree of improvement often occurred both in the bodily and in the mental state.

In the discussion which followed, emphasis was laid on the fact that the mental condition of these children was generally poor and that they were not good subjects for surgical operation. Reeducation was the most important point in treatment.

Cretinism.

DR. H. MATHEWSON showed a child, aged two years and three months, a cretin, who had been brought to him two months previously with a history of backwardness in walking and of going "off her legs." According to the family history the mother was forty years of age when the child was born. There were two children older than the patient. The elder had been born twelve years previously and had died in the Hospital for Sick Children of what was probably pyloric stenosis. During her pregnancy prior to the birth of the patient the mother had been ill-nourished. The pregnancy, however, had gone on to full term and the labour had been uneventful. The child had been well nourished and there was no history of any infection at birth. The child had been breast fed and had thriven well. She had sat up at six months and the first tooth had erupted at the same time. She had stood up at ten months of age and pushed a cart at twelve months. She had been able to say lots of things. The mother said that she was dull and would not turn her head at noises and that her head seemed heavy. At twelve months of age she had suffered from pertussis and had ceased to speak and to use her legs. The illness had lasted for three months and she had not recovered the use of her words.

On examination the child had appeared stunted and seemed doubled up. The head was large, the expression dull and heavy and the child had continually said "hullo." She had eight teeth which were badly decayed, her skin and hair had been dry and she had been very constipated. There had been no redundancy of skin and no fat pads had been present. She had not been interested in anything. There had been no protrusion of the tongue.

The child was being given 0·01 gramme (one-sixth of a grain) of thyreoid extract twice a day. When she was

first seen, her height had been 59·3 centimetres (twenty-three and three-quarter inches), the average normal height being 80 centimetres (thirty-two inches). At the time of demonstration, after taking thyreoid extract twice a day, her height was 70 centimetres (twenty-eight inches). Her weight at first had been 9·9 kilograms (twenty-two pounds), the average for her weight being 11·25 kilograms (twenty-five pounds). On the institution of thyreoid treatment the weight had at first dropped, but had then become steady. The main improvement had been in activity and cheerfulness. The complexion had improved and the child was saying numerous words. She laughed and cried heartily.

Erythrœdema.

Dr. Mathewson also showed a patient with typical erythrœdema. On admission the child had suffered from photophobia and tenderness of the extremities. He slept well and his appetite was good. He was two years of age, older than usual for a patient with erythrœdema.

Pituitary Dysfunction.

DR. S. F. MCDONALD showed a patient, aged ten years, the diagnosis of whose condition lay between cretinism or some pituitary disorder. The birth of the child had been normal. She had walked at four years and talked at five years. She was very restless, irritable and difficult to control; she did not feel the cold and she slept well. At school she was normal, but had no judgement. She was clean in her habits. The skin was dull and coarse, the hair fine and dry and the teeth poor. Physically she was poorly developed, sexually she was over developed. Her weight was 46·8 kilograms (seven stone six pounds), her height was 143·1 centimetres (fifty-seven and a quarter inches). The blood serum had not reacted to the Wassermann test. A skiagram of the skull revealed a small pituitary fossa. The basal metabolism and the blood sugar had not been estimated. The systolic blood pressure was 110 and the diastolic pressure 60 millimetres of mercury. The child had been given a little thyreoid in the country. The thyreoid gland was normal to palpation. The condition was regarded as a mild Fröhlich's pituitary lesion.

Ocular Plumbism.

Dr. McDonald also showed a patient who was suffering from ocular plumbism. The patient, a girl, aged four years and seven months, had been admitted on November 17, 1929, complaining of frequent attacks of pain in the abdomen. She suffered from severe headache and had a squint. The eyesight seemed to be failing. Examination of the blood had yielded the following information:

Erythrocytes, per cubic millimetre ..	3,900,000
Hæmoglobin value	80%
Colour index	0·9
Leucocytes, per cubic millimetre	17,000
Neutrophile cells	80%
Lymphocytes	20%

Punctate basophilia was present and examination of the fundi revealed the presence of papillœdema.

Lumbar puncture had been carried out on November 18, 19, 20, 21, 22, 26, 1929. Except on November 20 and 21 the cerebro-spinal fluid had been under increased pressure. The child had been given 0·6 gramme (ten grains) of calcium chloride three times a day to promote the storage of free lead in the bones, and sodium thiosulphate 0·45 gramme (seven and a half grains) in three cubic centimetres of water to increase the active elimination.

Polioencephalitis.

Dr. McDonald showed for Dr. Gavin Cameron a child admitted to the ward with cerebral symptoms resembling those of acute encephalitis.

According to the history the child had been ill for nine days from November 8, 1929, with fever and vomiting for the first two days of the illness. The right leg and arm had then become stiff.

On examination the child looked as though he were suffering from a cerebral condition. The neck was rigid, the left pupil was sluggish, there was rigidity of the right arm and leg. The tendon reflexes were exaggerated. There was no Babinski reflex. Kernig's sign was not present. The right abdominal reflexes were faint; there was tenderness of the muscles of the arms and legs. The throat and heart were clear. There were a few moist sounds at the left base. The diagnosis made was polioencephalitis.

On November 26, 1929, the left leg had seemed slightly flail-like; there had been paresis of the quadriceps and peroneal muscles. On November 28, 1929, there had been slight external rotation of the left leg. At the time of the meeting all paresis had practically disappeared.

Intussusception.

DR. G. P. DIXON related the history of an intussusception occurring in a perfectly healthy boy, aged thirteen months. He had had summer diarrhœa for two weeks. One week before prolapse of the bowel had occurred. It had been easily replaced.

On the day of admission he had been seen by a private practitioner. The doctor had found a prolapse which was again easily replaced, but a mass had been palpated in the rectum. The child had strained and passed a lot of blood-stained mucus. There had been no vomiting or constipation and the general condition had been moderately good.

At operation a right rectus incision had been made. There had been a large mass filling the pelvis and extending into the splenic flexure. Almost at the flexure an enormous mass had been delivered out of the wound. At the middle of the transverse colon the opening of the intussusception had been found; this had been reduced easily to the hepatic flexure where another intussusception had been found and this had been reduced to the caecum. There had been very little œdema, no adhesions and the blood supply had been good.

The condition had been a triple colic intussusception and the small bowel had not been drawn into it, except into a small part of the caecum, so the mesentery and blood vessels had not been constricted.

The points to be noted were the mildness of the symptoms, the lack of vomiting, the fact that the bowels were opening every day, with the stools a little blood stained. The condition had started with diarrhœa.

Two days before the meeting the patient's condition had been satisfactory.

An important point was the closure of the wound. Dr. Dixon considered through-and-through sutures were the best and he wrapped the child round with a good broad plaster, as the strain of crying was liable to tear a small part of the incision and the wound would herniate. He left the sutures for ten days and then used a plaster strap.

Tuberculous Peritonitis.

DR. J. V. DUHIG showed a specimen of glands from a child that had died of tuberculous peritonitis; also a section of the gland showing tubercle bacilli *in situ*.

Hospitals.

THE ROYAL ALEXANDRA HOSPITAL FOR CHILDREN.

THE GASTRO-ENTERITIS EPIDEMIC, 1928-1929.

DR. E. H. M. STEPHEN, Honorary Physician to the Royal Alexandra Hospital for Children, Sydney, has forwarded to this office reports of the gastro-enteritis epidemic of 1928-1929. The reports have been prepared by Dr. L. Amphlett, Resident Medical Officer, and Dr. P. M. Anderson, Pathologist. During the period under review Dr. Stephen was in charge of the patients in the Shelter Ward.

Clinical Report.

The total admissions during the period October, 1928, to May, 1929, were 224 with a death rate of 21%, eliminating deaths occurring within twenty-four hours of admission.

There were no wholly breast-fed children admitted to the Shelter Ward and only one or two were partially breast fed. Illegitimate children accounted for over one-seventh of the total deaths with a mortality rate of about 8%. Children over twelve months of age accounted for only 2% of the deaths.

Nearly one half of the fatal cases were complicated by other diseases, the chief complications (or accompanying diseases) being: Marasmus 6, pneumonia 6, pyelitis 3, lung abscess 1, pharyngitis 1, diphtheria 1, anæmia 1, atelectasis 1, pyelonephritis 2.

The gastro-enteritic and ileo-colitic infections uncomplicated by other diseases were classified as either toxic (ten deaths) or non-toxic (fourteen deaths).

The term toxic is used for those infections in which a healthy, well-nourished child was suddenly stricken down with vomiting and frequent motions, the temperature was elevated, the child was restless and sunken-eyed and death occurred within a few hours or more often four to five days.

The non-toxic type of gastro-enteritis occurred more often in ill-nourished marasmic infants, the onset often being insidious, the course of the disease drawn out, death often not occurring for four to five weeks.

Post mortem examinations were obtained in 3% of the cases.

Conclusions.

1. No breast-fed child died.

2. There was a high mortality among illegitimate children.

3. There was a low mortality of children over twelve months of age.

Deaths.

Deaths numbered four in October, 14 in November, 10 in December, 10 in January, five in February, seven in March, two in April, two in May.

Report of Autopsies.

Autopsies were performed in sixteen cases during this period.

The *post mortem* appearances in the alimentary tract were of two types:

The most common lesion found was the small ulcer scarcely more than two or three millimetres in diameter, found in the lower part of the ileum and large intestine, which commences as a small area of infiltration and œdema surrounded by a zone of congestion, the characteristic felted appearance of the intestinal mucosa still being present. When the condition has advanced further, these areas show a tiny black point where a hæmorrhage has taken place, the apex becomes denuded of mucous membrane and the colon appears as though sprinkled with pepper. Occasionally the process extends and one may find ulcers of six to seven millimetres amongst the numerous small ones. At this stage there is a general smoothness of the intestinal wall and the mucosa is extremely friable. The Peyer's patches of the small intestine frequently showed a definite degree of congestion, but they rarely go on to ulceration. The lymphatic glands situated along the mesentery are constantly swollen and red. When there has been a longer history prior to death, there is a generalized thickening of the bowel wall and on transverse section an œdema of the submucosa may be visible.

A small proportion, three cases, showed a more extensive lesion, the ulcers being of at least one centimetre diameter, with heaped-up edges, surrounding congestion and sometimes blood clot visible at the base of the ulcer, and the intestinal contents blood stained. The liver is in these children usually slightly enlarged, pale and mottled. There were found small subperitoneal hæmorrhages in two cases, both in children who had had convulsions prior to death. The kidneys in two children exhibited developmental abnormalities, one having the left kidney *minus* suprarenal gland, situated directly over the second lumbar vertebra; in the other there was no kidney pelvis visible, the ureter disappearing with unchanged calibre into the kidney substance. Two children developed acute nephritis, two had severe pyelitis with much pus in the urine. The pancreas rarely shows any appearance which would suggest any functional irregularity—the customary pink colour of the lobules is occasionally altered to a yellowish pallor in infections of long duration.

Pulmonary complications were common. In four cases a definite bronchopneumonia was present, in two lung abscesses, in one in a bronchiectatic cavity, and three had subpleural hæmorrhages; two of these also had subperitoneal hæmorrhages in the liver.

The routine bacteriological examination of the stools of all patients admitted to the ward was culture from the deposit in a fresh saline solution bowel wash-out in MacConkey's medium, also 1% lactose litmus agar. Two specimens were obtained, one from the beginning, the other from the end of the lavage. Of the cases which came to autopsy, three had non-lactose fermenting bacilli which produced acid and gas in glucose, mannite and saccharose, conforming to the type of Morgan number 14. It is interesting to note that all three children with this infection had pus in the urine.

Cultures from the other children showed only lactose fermenting colonies on the plates. Flexner dysentery was not found in any fatal case.

It is felt that bacteriological investigation was very limited. Blood media were not used as a routine and no effort at classification other than by fermentation reactions was possible.

The autopsy findings convince one that the term "gastro-enteritis" is a misnomer, being applicable to symptoms and not to facts and that a more adequate description of the condition found *post mortem* is summed up in the term "toxic ileocolitis."

Correspondence.

DIATHERMY OF TONSILS.

SIR: As an enthusiastic advocate of the removal of adult tonsils by diathermy, the recent correspondence in the journal on the tonsil question has prompted me to place before my colleagues a very valuable personal experience in the use of this excellent method of removing tonsils painlessly and bloodlessly under local anæsthesia. During the winter of 1929 I contracted a severe streptococcal tonsillitis from a patient in the Canberra Hospital whom I was treating for the same condition, and about a week after the tonsillitis had apparently subsided, I began to get "rheumatic" pains in my left knee joint and sciatica in my left hip, especially after performing any long operation such as a mastoid, which involved standing for an hour or two with the weight of my body chiefly supported on my left leg. I realized at once that I should have to part with my tonsils, which were obviously the seat of a focal infection, and I decided to try the experiment of removing them myself with diathermy which I had been using as a routine for the removal of all adult tonsils during the previous twelve months with very gratifying results. The technique that I employed, was a combination of electro-desiccation with the monopolar or Oudin current and electro-coagulation with the bipolar or D'Arsonval current and the machine that I used, was one of the latest models of the Watson Mark 1A. After spraying my right tonsil with "Codrenine" (which is a 2% solution of cocaine and adrenalin) I then painted the tonsil itself, the faucial pillars, uvula, soft palate and base of my tongue with a cotton tipped applicator moistened with a 10% solution of cocaine and adrenalin, three times at three-minute intervals until the tonsil and the surrounding parts were quite anæsthetic. With a speclite shining from my forehead, I then placed a small mirror against a cardboard box on an examining couch so that when I sat on a chair facing the couch the light from the speclite was reflected from the surface of the mirror into my throat and gave me an excellent close-up view of my own tonsils. With the foot switch of the diathermy machine on the floor close to my right foot, my tongue held down with a glass tongue depressor in my right hand and an insulated needle in a bent Cumberbatch handle held in

my left hand, I then proceeded to desiccate my right tonsil with the monopolar or Oudin current. I found the treatment quite painless and at the end of half a minute the whole surface of my right tonsil was white from the desiccation. I then painted the tonsil with a 2% solution of acriviolet, as recommended by Dillenger, of Pittsburgh, United States of America, and the first sitting was over. I went on with my professional work as usual for the rest of the day and, beyond a slight soreness when eating my dinner the same evening, I had no discomfort whatever. Five days later I desiccated my left tonsil with the same technique and continued to carry on my practice without the slightest inconvenience beyond a temporary discomfort in my throat for the first twenty-four hours. At the end of another five days I gave my right tonsil a second treatment, this time with electro-coagulation by the bipolar method, according to the technique recommended by Dillenger which I have found to be the most effective of all for removing tonsils by diathermy. I first of all "set" the diathermy machine by "short circuiting" the two surgical terminals with a rubber insulated cord and, after opening the spark gaps slightly, I moved the current selector button round until the meter showed a reading of 2,500 milliampères which is the ampèrage that Dillenger has found to be the most effective for destroying the tonsillar tissue quickly and easily, although a current up to 3,000 milliampères can be used with perfect safety for tonsil work and also for destroying benign and malignant growths in and about the oral cavity. I then placed the inactive electrode (a piece of block tin measuring ten inches by six inches), slightly warmed, on the bare skin behind my shoulders and instructed a junior nurse to mould it to the contours of my upper dorsal region and then to hold it firmly in position by pressing against it with the hands over a piece of folded rubber sheeting (so that she would be insulated) while I proceeded to coagulate my right tonsil with a Dillinger needle electrode held in my left hand, while I held my tongue down with a Cresswell Baber tongue depressor which has two blunt hooks at each end (right and left) that enable you to gently pull back the anterior pillar of the tonsil at the same time as you depress the tongue. With the rubber insulated needle buried in my tonsil for a quarter of an inch I stepped on the foot switch and in less than two seconds the usual white ring appeared round the needle embedded in the tonsil. I then released the foot switch and inserted the needle in a fresh position and repeated the procedure until I had made four punctures in the tonsil a quarter of an inch apart and keeping at least one-eighth of an inch away from both the anterior and posterior pillars. I felt no pain whatever, only a sense of warmth in the depths of my tonsil. I again painted the tonsil with the acriviolet solution and went on with my work with no more discomfort than I felt after the two desiccation treatments and on the following day I was able to carry out a solid morning's work in submucous resection of the septum and a mastoid. Five days later I coagulated my left tonsil with the same technique and at the end of another week fully two-thirds of each of my tonsils had disappeared. I then gave each of them another treatment with the desiccation method and a week later only a thin film of healthy looking tonsil tissue remained on each side, while the "rheumatism" in my left knee and the sciatica had disappeared completely. If, however, I should have a recurrence of any further rheumatic symptoms at any time I shall have no hesitation in removing the remaining tonsil tissue completely with another desiccation or coagulation treatment on each side.

I have been using the diathermy method of removing all adult tonsils for the past two years with very gratifying results both to my patients and myself and during the whole of this period I have had no primary hæmorrhage whatever and only one slight secondary hæmorrhage which was easily checked in a few minutes by pressing on the tonsil bed with a cotton tipped applicator moistened with peroxide, followed by some cracked ice to suck and an iced compress applied externally for an hour or two, after which there was no recurrence of the bleeding and the tonsil fossa healed perfectly. When one compares this experience with the amount of blood that is lost both during and after every tonsillectomy with the guillotine or dissection methods *plus* the ever present danger of a deep anæsthesia and the acute pain and discomfort that continues for a week or ten days after every surgical tonsillectomy, and when one thinks of the many other advantages of the diathermy method from the patient's point of view, such as the saving of hospital and anæsthetic fees, the economic gain, both to the individual and the State, to be able to continue his or her usual occupation with undiminished earning capacity during the treatment and the immense saving every year in large metropolitan hospitals of gallons of ethyl chloride and ether, morphia and atropine, thousands of sterile gauze throat sponges used in mopping, to say nothing of the endless preparation of and cleaning up of the operating theatres before and after surgical tonsillectomies, I think that any unbiased reader will admit that diathermy wins on all counts and will be the method of election for the removal of tonsils in all patients over twelve years of age in the not far distant future. In conclusion I should like to ask the critics of diathermy two very pertinent questions: 1. How many of them would have the courage to remove their own tonsils either with a guillotine or with a blunt or sharp dissector? 2. If they survived the ordeal, how many of them would be in a fit condition to enter the operating theatre and perform an antrum, a submucous resection and a mastoid operation the following morning?

Yours, etc.,

A. J. CAHILL.

Sydney Buildings, Canberra,
Federal Capital Territory.
May 26, 1930.

Proceedings of the Australian Medical Boards.

TASMANIA.

THE undermentioned has been registered under the provisions of *The Medical Act*, 1918, of Tasmania, as a duly qualified medical practitioner:

Ormond-Smith, Lawrence, M.D., 1921 (Univ. Boston), Waratah, Tasmania.

Books Received.

RECENT WORK ON COLPORRHAPHY, RHEUMATISM AND COLI BACILLURIA, Second Edition, by E. Hesketh Roberts, F.R.C.S., M.D., B.S.; 1930. London: H. K. Lewis and Company Limited. Demy 8vo., pp. 32, with fifteen illustrations. Price: 3s. 6d. net.

NASAL CATARRH, by W. Stuart-Low, F.R.C.S.; 1930. London: H. K. Lewis and Company Limited. Crown 8vo., pp. 94, with thirteen illustrations. Price: 5s. net.

THE DOCTOR'S MISSION: REFLECTIONS, REMINISCENCES AND REVELATIONS OF A MEDICAL MAN, by Erwin Liek; 1930. London: John Murray. Crown 8vo., pp. 316. Price: 6s. net.

BIOLOGICAL MONOGRAPHS AND MANUALS: (V) STATISTICAL METHODS FOR RESEARCH WORKERS, by R. A. Fisher, Sc.D., F.R.S.; Third Edition, Revised and Enlarged; 1930. Edinburgh: Oliver and Boyd. Demy 8vo., pp. 294. Price: 15s. net.

MALARIAL NEPHRITIS: EPIDEMIOLOGICAL AND CLINICAL NOTES ON MALARIA, BLACKWATER FEVER, ALBUMINURIA AND NEPHRITIS IN THE INTERIOR OF BRITISH GUIANA, BASED ON SEVEN YEARS' CONTINUAL OBSERVATION, by George Giglioli, M.D., D.T.M. & H.; 1930. London: J. & A. Churchill. Post 8vo., pp. 172, with 17 illustrations. Price: 8s. 6d. net.

A HANDBOOK OF THE MOSQUITOES OF NORTH AMERICA: THEIR STRUCTURE, HOW THEY LIVE, HOW THEY CARRY DISEASE, HOW THEY MAY BE STUDIED, HOW THEY MAY BE CONTROLLED, HOW THEY MAY BE IDENTIFIED, by Robert Matheson; 1929. London: Baillière, Tindall and Cox. Royal 8vo., pp. 285, with illustrations. Price: 25s. net.

A TEXT-BOOK ON ORTHOPEDIC SURGERY, by Willis C. Campbell, M.D., F.A.C.S.; 1930. Philadelphia and London: W. B. Saunders Company; Melbourne: James Little. Royal 8vo., pp. 705, with illustrations. Price: 37s. 6d. net.

SURGICAL DIAGNOSIS, by American Authors, Edited by Evarts Ambrose Graham, A.B., M.D., Volume I; 1930. Philadelphia and London: W. B. Saunders Company; Melbourne: James Little. Royal 8vo., pp. 927, with illustrations.

SURGICAL DIAGNOSIS, by American Authors, Edited by Evarts Ambrose Graham, A.B., M.D., Volume II; 1930. Philadelphia and London: W. B. Saunders Company; Melbourne: James Little. Royal 8vo., pp. 878, with illustrations.

DIE REGULIERUNG DES BLUTKREISLAUFES, GLEICHZEITIG EIN BEITRAG ZUR PHYSIOLOGIE DES VEGETATIVEN NERVENSYSTEMES, by W. R. Hess; 1930. Leipzig: Georg Thieme. Crown 4to., pp. 162, with 21 illustrations. Price: Marks 12 net.

CATECHISM SERIES: DISEASES OF THE EYE, by William George Sym, M.D., F.R.C.S.E.; Third Edition. Edinburgh: E. & S. Livingstone. Crown 8vo., pp. 71. Price: 1s. 6d. net.

Diary for the Month.

JUNE 10.—New South Wales Branch, B.M.A.: Ethics Committee.
JUNE 12.—Victorian Branch, B.M.A.: Council.
JUNE 12.—New South Wales Branch, B.M.A.: Clinical Meeting.
JUNE 13.—Queensland Branch, B.M.A.: Council.
JUNE 17.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JUNE 18.—New South Wales Branch, B.M.A.: Section of Obstetrics and Gynæcology.
JUNE 18.—Queensland Branch, B.M.A.: Eye, Ear, Nose and Throat Section.
JUNE 24.—New South Wales Branch, B.M.A.: Medical Politics Committee.
JUNE 25.—Victorian Branch, B.M.A.: Council.
JUNE 26.—New South Wales Branch, B.M.A.: Branch.
JUNE 26.—South Australian Branch, B.M.A.: Branch.
JUNE 27.—Queensland Branch, B.M.A.: Council.

Medical Appointments.

Dr. H. K. Fry (B.M.A.) has been reappointed as an Official Visitor to the Mental Hospital at Parkside, South Australia.

* * *

Dr. T. C. James (B.M.A.) has been appointed Local Officer of Health to the Kentish Municipality, Tasmania.

* * *

Dr. Taylor-Thomas has been appointed Medical Officer of Health by the Denmark Road Board, Western Australia.

* * *

Dr. C. S. B. Langdon (B.M.A.) has been appointed Certifying Medical Practitioner at Omeo, Victoria, pursuant to the provisions of the *Workers' Compensation Act*, 1928.

* * *

Dr. W. A. J. Brady (B.M.A.) has been appointed Acting Superintendent of the Hospital for the Insane, Ararat, Victoria, pursuant to the provisions of the *Lunacy Act*, 1928.

* * *

Dr. H. H. Spencer (B.M.A.) has been appointed Certifying Medical Practitioner and also Medical Referee at Kyabram, Victoria, pursuant to the provisions of the *Workers' Compensation Act*, 1928.

Medical Appointments Vacant, etc.

FOR announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser," page xvi.

HOBART PUBLIC HOSPITAL, HOBART, TASMANIA: Senior Resident Medical Officer (1), Junior Resident Medical Officers (2).

JANEFIELD SANATORIUM, BUNDOORA, VICTORIA: Resident Medical Officer.

REPATRIATION COMMISSION: Junior Resident Medical Officer.

THE WOMEN'S HOSPITAL, CROWN STREET, SYDNEY, NEW SOUTH WALES: Junior Resident Medical Officer, Temporary Honorary Assistant Anæsthetist and Relieving Medical Officer.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 21, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company, Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting apopintments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Mount Isa Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge Appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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